Analysis of Factors Affecting U.S. Cotton Exports

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ANALYSIS OF FACTORS AFFECTING U.S. COTTON EXPORTS

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HIGHLIGHTS

The economic welfare of the domestic cotton industry and of the many small communities of the Cotton Belt depends on U.S. exports of cotton. During 1955-64, U.S. exports of cotton averaged 5.2 million bales -- 37 percent of domestic production during that period.

Part I of the study indicates that world production and consumption of cotton have trended upward during this period. Production has increased because more countries are engaged in producing cotton and yields have been rising. Consumption also has been rising, particularly in some cotton-producing countries where textile industries have been developed and expanded in recent years. World cotton trade has not increased as much as consumption, reflecting greater consumption from domestic production in many countries.

The trend and pattern in world consumption of cotton has been significantly influenced by the use of man-made fibers. World consumption of these fibers rose from 2.1 billion pounds in 1947 to 10.9 billion pounds in 1964. The use of cotton has not kept pace with the increased use of other fibers. As a result, cotton's share of total fiber consumption dropped from 73 percent in 1949 to about 62 percent in 1964.

Changes in the size of world cotton production in relation to consumption are reflected in changes in world cotton stocks. Since 1947, world stocks have varied widely, with most of the change occurring in U.S. stocks.

World cotton exports in the postwar period have ranged from a low of 8.6 million bales in 1947-48 to a record 17.9 million in 1963-64. The U.S. share of world exports has trended downward for many years. Before the middle 1930's, U.S. cotton exports accounted for more than half of world trade in cotton. For 1961-64, the U.S. share averaged about 28 percent.

Cotton prices in foreign import markets have fluctuated widely in the postwar period. Early in the Korean conflict, world prices advanced sharply, then declined sharply in 1951-52 as world production increased. During the 1950's, increased supplies of cotton continued to exert pressure on world markets, and by mid-1959 prices were at their lowest levels in many years. Prices strengthened over the next two seasons, then weakened in 1963 following record foreign crops and a slowdown in textile activity.

Part II of the study examines major economic factors affecting world cotton consumption, including population, the level of economic activity, prices of cotton, and prices of competing fibers. During 1948-62, cotton price, world index of industrial production, and non-cellulosic fiber consumption explained 92 percent of the year-to-year variation in world cotton consumption. The demand elasticity for cotton with respect to price was -0.25, which means that on the average a 1-percent increase in

the world price of cotton was associated with a 0.25-percent decline in cotton consumption. The index of industrial production and non-cellulosic fiber consumption also were important determinants of world cotton consumption.

In an analysis of foreign Free-World (FFW) mill consumption, per capita income, cotton prices, and consumption of non-cellulosic fibers explained 85 percent of the variation in consumption of cotton. The elasticity of FFW demand for cotton with respect to price was -0.27. Converted to bales of cotton, using 1963 price levels, this would mean that a 1-cent-per-pound decrease in the price of cotton would result in a 135,000-bale increase in FFW consumption at 1963 population levels. Per capita income also was an important determinant of foreign Free-World consumption, with non-cellulosic fiber consumption having less influence.

In an analysis of foreign Free-World cotton acreage, world prices and trend factors explained 97 percent of the variation in acreage. A 1-cent change in the world price of cotton was associated with a change in the same direction of 228,000 acres of cotton in the following year. Using average 1963 yields, this would represent about 100,000 bales of cotton.

The combined effect on the demand for U.S. cotton exports of a 1-cent-per-pound change in price of cotton, other factors unchanged, would therefore be the total of the change in FFW consumption and production. Assuming no stock changes, FFW demand for U.S. cotton exports would be increased by 235,000 bales--the combined total of the increase in FFW consumption and the decrease in FFW production. The total consumption and production response to a price change for cotton does not occur during the first year; thus the results of a given price change, if maintained, could mean a somewhat greater effect after a few years.

A comparison of prices of U.S. and Mexican-grown cotton showed that there was little shift in foreign buying from U.S. cotton to foreign growths in years when U.S. prices were only slightly higher. However, when the differential widened, as in 1955-56 and 1958-59, there was a sharp shift to foreign growths and U.S. cotton exports dropped sharply.

PART I. BACKGROUND AND ECONOMIC TRENDS

Introduction

The economic welfare of the U.S. cotton industry is directly related to the U.S. share of world cotton trade. U.S. cotton exports are vital in maintaining farm income and are important to the overall level of economic activity in cotton-producing States. The profits and employment level of ginners, warehousemen, merchants, farm-supply firms, and other businesses are affected by the volume of cotton exports. Despite current programs of acreage allotments and reduced costs to domestic users, recent crops have been greatly in excess of current and prospective mill consumption.

Cotton is the largest cash crop grown in the United States, accounting for about 7 percent of total cash receipts received by farmers during 1964. In many of the major cotton-producing States, cotton accounts for a much larger share of farm cash receipts. For example, Mississippi cotton comprised about 48 percent of the that State's total farm cash receipts in 1964.

In 1959-63, U.S. mills consumed only 59 percent of yearly production, leaving 41 percent of the crop to be exported or added to Commodity Credit Corporation stocks.

Until sometime after the end of World War I, the United States was the world's largest exporter of cotton; since then, however, both the level of U.S. exports and this country's share of world exports have been declining. The downward trend in exports, in both absolute and relative terms, started in the 1920's and continued into the early 1940's. World War II disrupted world markets, with U.S. cotton exports falling to about 1.2 million bales in 1940-41. After the war, world cotton trade trended sharply upward. U.S. exports did not share in the increased trade, however, and in the early 1950's fell to low levels. Following the establishment of U.S. export programs in the mid-1950's, exports and the U.S. share of the world market both increased. But in the late 1950's and early 1960's, U.S. exports did not rise proportionately with increasing world trade, although the United States remains the largest cotton exporter.

Distinct changes have taken place in the volume and sources of the world's cotton supply in the postwar years. Much more cotton is being produced in foreign countries, with more countries engaged in production. Many of these new producing countries have become net exporters of cotton, where previously they were net importers.

A great many factors influencing U.S. cotton exports have only minor significance when considered alone, but assume greater importance when considered together (fig. 1). These factors are both short-term and long-term. For example, year-to-year changes in carryover stocks, which reflect cyclical changes in economic activity of foreign countries and expected price changes, are important during a given season in explaining the level of U.S. exports. Longer-run factors--including economic and population growth, foreign cotton production and consumption, relative cotton prices, and competition from man-made fibers--are of vital importance in determining the levels of both U.S. exports and world cotton trade. To illustrate, when resources are committed to the production of man-made fibers or the production of cotton in foreign countries, the trend thereby established is difficult to reverse. As a result, potential markets for U.S. cotton are reduced.

Of the many factors that influence U.S. exports, the economic ones predominate. The primary purpose of this study is to investigate the economic relationships that influence both the volume of world trade in cotton and the U.S. share of this trade. As far as possible, the study attempts to obtain quantitative approximations of these relationships. The main emphasis is placed on the analysis of factors affecting foreign consumption and production of cotton, since the past and future levels of U.S. exports are largely determined by these two factors. The analyses are limited to the post-World War II period and to the FFW because of lack of reliable data for many countries.

The foreign world is divided into the foreign Free World (FFW) and Communist countries. For all years throughout the report, FFW and Communist countries' boundaries are assumed to be the same as those existing in 1965. Communist countries include the U.S.S.R., Mainland China, and Eastern European countries. Names of countries are those used in 1965. Except where otherwise indicated, years are crop years beginning August 1.

World Cotton Situation

Striking changes have occurred in the volume and source of world cotton production, consumption, and trade during the past 15 years. The number of countries growing cotton and the volume of production have increased sharply. During 1947, only 16 foreign countries produced 100,000 bales or more of cotton annually; by 1964, 25 countries were producing over 100,000 bales annually.

FACTORS INFLUENCING UNITED STATES RAW COTTON EXPORTS

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┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐
│  PRICE   │  │PER CAPITA│  │PRICES OF │  │POPULATION│
│          │  │ INCOME   │  │COMPETING │  │          │
│          │  │          │  │ FIBERS   │  │          │
└──────────┘  └──────────┘  └──────────┘  └──────────┘
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FOREIGN MILL CONSUMPTION OF COTTON

EXPECTED PRICE FOLLOWING YEAR

CHANGE IN FOREIGN STOCKS OF RAW COTTON

U.S. GOV'T. POLICIES AND REGULATIONS

PRICE UNITED STATES RELATIVE TO FOREIGN GROWTHS

UNITED STATES RAW COTTON EXPORTS

FOREIGN COTTON PRODUCTION

FOREIGN ACREAGE

YIELD PER ACRE

WEATHER, CULTURAL PRACTICES, INSECTS & DISEASES

PRICES PRECEDING YEAR

PRICES OF COMPETING CROPS

GOVERNMENT POLICIES AND REGULATIONS

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Figure 1

Trends in Production

World cotton production exceeded world consumption for each of the 3 years, 1962-64, by an average of 2.5 million bales. Most of the excess world production was reflected in a buildup of U.S. stocks. FFW cotton stocks during that period remained relatively stable at around 10 million bales.

World cotton production reached a pre-World War II high of 39.0 million bales in 1937. Production dropped sharply during the war, declining to 21.1 million bales in 1945. Following the war, world production increased sharply and in 1953 reached the postwar high of 42.2 million bales. Production continued to trend upward and in 1964 totaled 51.9 million bales, an all-time high (appendix table 10 and fig. 2). Average production for 1959-63 was 47.3 million bales--55 percent larger than the 30.5 average for 1934-38. During this period, there were substantial changes in the geographic pattern of world production (table 1). The most notable change outside the United States was the percentage increase in production in Communist countries.

Table 1.--Cotton production: Foreign Free World, United States, Communist countries, and world--annual average for 1934-38 and 1959-63 and percentage increase

Region or country	Average 1934-38 [1]		Average 1959-63 [1]		Increase in production
	Quantity	Share of world total	Quantity	Share of world total	
	1,000 bales	Percent	1,000 bales	Percent	Percent
Foreign Free World...:	11,687	38	19,776	42	69
United States........:	12,712	42	14,670	31	12
Communist countries..:	6,129	20	12,805	27	109
World..............:	30,528	100	47,251	100	55

[1] Crop year beginning August 1.

FFW countries produced 8.9 million bales of cotton in the 1947-48 crop year--about 35 percent of the world's crop of 25.5 million. During the Korean conflict, with short supplies and sharply rising world prices for cotton, production increased over 50 percent to 13.8 million bales in 1952. FFW acreage and production continued to set new highs every year, except in 1956 and 1959. Production totaled 22.9 million bales in 1964, a 157 percent increase from 1947. This contrasts with the United States where acreage controls were instituted in 1954 and acreage has been at lower levels since then; planted acreage in the United States declined from about 19.3 million acres in 1954 to 14.1 million in 1964. In FFW countries, cotton became increasingly important as a cash crop, an earner of foreign exchange, and a raw material for textiles for both domestic use and export.

During 1947-64, FFW cotton production increased at an average annual rate [2] of 4.9 percent, or the equivalent of 764,000 bales a year. Growth was much slower in

[2] The methodology used in this study for computing the average annual rate of change consists of fitting a trend line of the exponential type directly to the natural numbers, rather than to their logarithms, as in least squares. See Glover (9), Mills (16), and Burns (2). Underscored figures in parentheses refer to Literature Cited p. 38.

COTTON PRODUCTION

MIL. BALES*

World Total

COMMUNIST COUNTRIES

FOREIGN FREE WORLD COUNTRIES

UNITED STATES

YEAR BEGINNING AUGUST 1.   * 500 POUND GROSS WEIGHT BALES.

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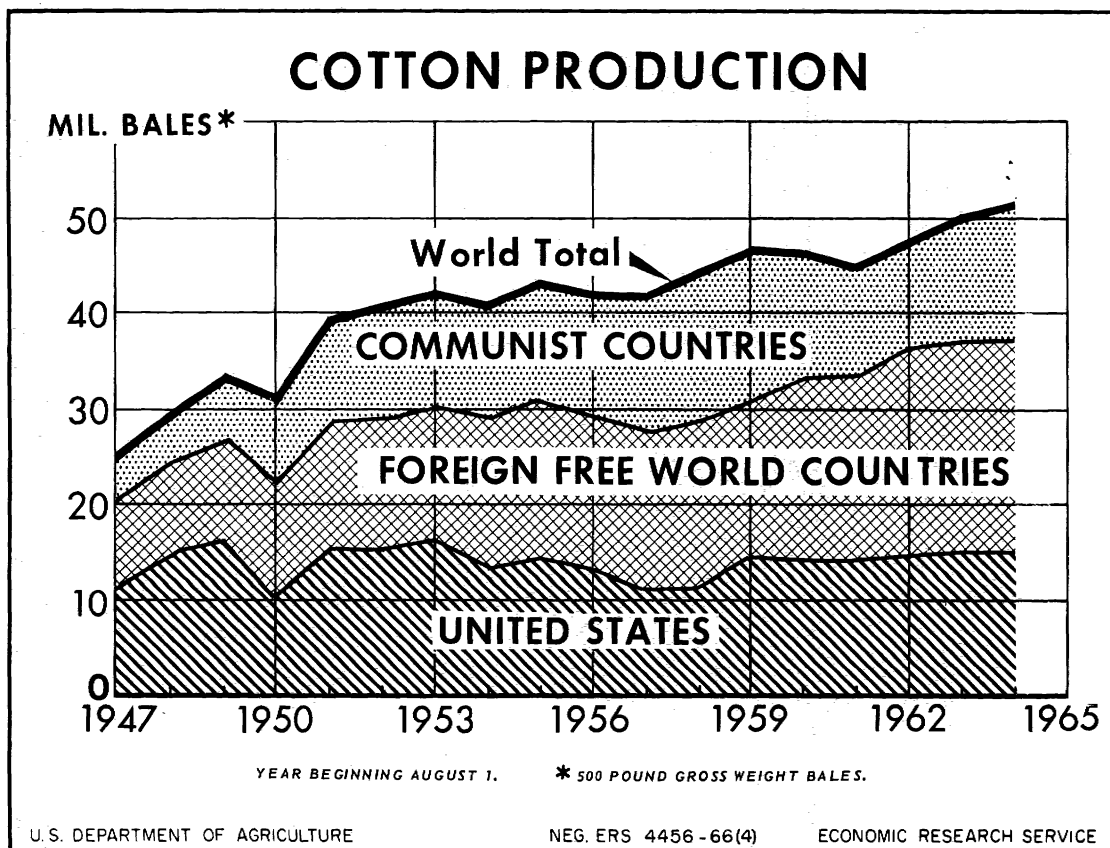
Figure 2

the last part of this period. During 1955-64, the average annual rate of increase was 4.3 percent, or the equivalent of 792,000 bales (fig. 3).

Production increases have been accomplished through both increased acreage and higher yields per acre. Acreage expansion in foreign countries has responded to the profitability of cotton as a cash crop and earner of foreign exchange. Higher yields have been obtained by the increased use of irrigation and fertilizers, better insect and disease control, and more widespread use of other improved cultural practices. Government action by the various foreign countries is also important in determining how much land and other physical resources are devoted to the production of cotton.

World acreage of cotton averaged 80.1 million acres annually during 1959-63--about 2 percent below the 81.6 million average for 1934-38 (table 2, appendix table 11, and fig. 4). Although world acreage declined slightly, foreign acreage increased 22 percent. The small decrease in world cotton acreage resulted from a decline of 13.2 million acres in U.S. acreage, which fell to 19 percent of world acreage in 1959-63.

Since the mid-1950's, the rate of increase in cotton acreage in FFW countries slowed, partly because of lower world prices than in the early 1950's. The rate of increase in production also slowed, although yields continued to rise at an increased rate (table 3 and fig. 5).

FFW cotton acreage in 1955-64 increased at an average annual rate of 0.9 percent compared with 2.8 percent for 1947-64, while yields increased at an increased rate of 3.4 percent compared with 2.1 percent for 1947-64 (fig. 5). The decline in the rate of increase in acreage more than offset the increased yield, slowing the rate of expansion in production. Output in FFW countries increased at a rate of 4.3 percent for 1955-64, which is somewhat less than the 4.9 percent for 1947-64.

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FOREIGN FREE WORLD COTTON PRODUCTION AND CONSUMPTION

MIL. BALES

Consumption *
AV. ANN. RATE OF CHANGE
— — — 3.6%
·············· 2.8%

Production *
AV. ANN. RATE OF CHANGE
— — — 4.9%
·············· 4.3%

— — — 1947-64 trend
·············· 1955-64 trend

20

15

10

1950-51   '55-56   '60-61   '65-66

CROP YEAR BEGINNING AUGUST 1.   1964-65 ESTIMATED.
✻ PLOTTED ON RATIO SCALE WHERE EQUAL VERTICAL DISTANCES REPRESENT EQUAL PERCENTAGE CHANGES.

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Figure 3

COTTON ACREAGE

MIL. ACRES

World Total

COMMUNIST COUNTRIES

FOREIGN FREE WORLD

UNITED STATES

80

60

40

20

0

1947   1950   1953   1956   1959   1962   1965

YEAR BEGINNING AUGUST 1.

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Figure 4

- 7 -

Table 2.--Cotton acreage: Foreign Free World, United States, Communist countries, and world--annual average for 1934-38 and 1959-63 and percentage change

Region or country	Average 1934-38		Average 1959-63		Change in acreage
	Quantity	Share of world total	Quantity	Share of world total	
	1,000 acres	Percent	1,000 acres	Percent	Percent
Foreign Free World....:	40,761	50	47,566	59	17
United States.........:	28,400	35	15,168	19	-47
Communist countries...:	12,427	15	17,404	22	40
World...............:	81,588	100	80,138	100	-2

Table 3.--Cotton acreage, yield, and production--average annual rates of change, 1947-64 and 1955-64

Area	Average 1947-64			Average 1955-64		
	Acreage	Yield	Production	Acreage	Yield	Production
	Percent	Percent	Percent	Percent	Percent	Percent
Mexico...............:	2.4	4.7	6.5	-2.8	3.8	1.0
Central America........:	12.0	6.7	18.6	10.6	3.2	17.0
Argentina.............:	0.9	-0.8	0.0	0.0	-0.9	-1.2
Brazil................:	1.4	1.0	3.2	4.2	2.8	7.0
Peru..................:	3.9	0.6	4.6	2.3	1.3	3.9
South America (except Brazil) :	2.6	1.2	3.7	2.6	1.0	3.5
Spain.................:	13.0	7.3	18.8	5.9	6.5	12.0
Greece................:	8.1	3.3	10.9	2.5	3.3	5.6
Western Europe.........:	3.8	6.8	10.0	-1.6	7.3	5.9
India.................:	2.9	1.5	4.4	-0.4	3.2	2.8
Iran..................:	8.6	2.5	11.0	6.7	2.0	8.6
Pakistan..............:	1.2	2.2	3.4	0.2	3.7	4.0
Syria.................:	8.7	2.9	12.8	1.7	5.6	7.6
Turkey................:	3.6	3.0	6.9	0.5	6.6	7.3
Asia (except India, Pakistan, and Mainland China) :	4.9	3.6	8.4	2.4	4.4	7.1
Egypt.................:	0.6	1.1	1.7	-0.8	4.4	3.3
Sudan.................:	6.6	-0.6	6.1	6.5	-1.9	5.0
Africa (except Egypt and Sudan) :	2.6	0.8	3.4	0.7	0.9	1.6
Foreign Free World.....:	2.8	2.1	4.9	0.9	3.4	4.3

World average per-acre yields of cotton have trended upward at much faster rates than cotton acreage in recent years. World cotton yields averaged 283 pounds per acre during 1959-63, about 57 percent above the 180-pound average for 1934-38 (appendix table 12). During this period, U.S. cotton yields increased by 119 percent, compared with 49 percent in the Communist countries and 45 percent in foreign Free-World countries (table 4).

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FOREIGN FREE WORLD COTTON ACREAGE AND YIELD

MIL. ACRES

LB. PER ACRE

Acreage *
AV. ANN. RATE OF CHANGE

- - - 2.8%
.... 0.9%

50

40

30

Yield *
AV. ANN. RATE OF CHANGE

- - - 2.1%
.... 3.4%

250

200

150

- - - 1947-64 trend
.... 1955-64 trend

1950-51   '55-56   '60-61   '65-66

CROP YEAR BEGINNING AUGUST 1. 500 POUND GROSS WEIGHT BALES. 1964-65 ESTIMATED.
* PLOTTED ON RATIO SCALE WHERE EQUAL VERTICAL DISTANCES REPRESENT EQUAL PERCENTAGE CHANGES.

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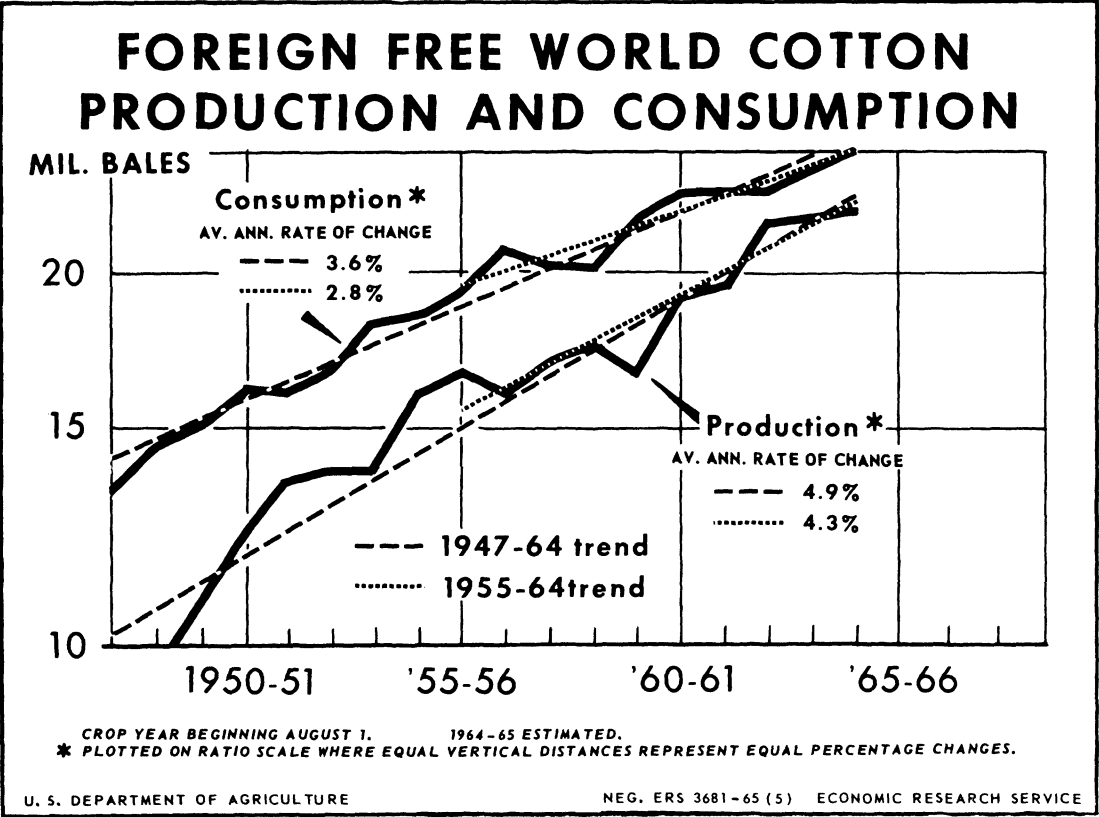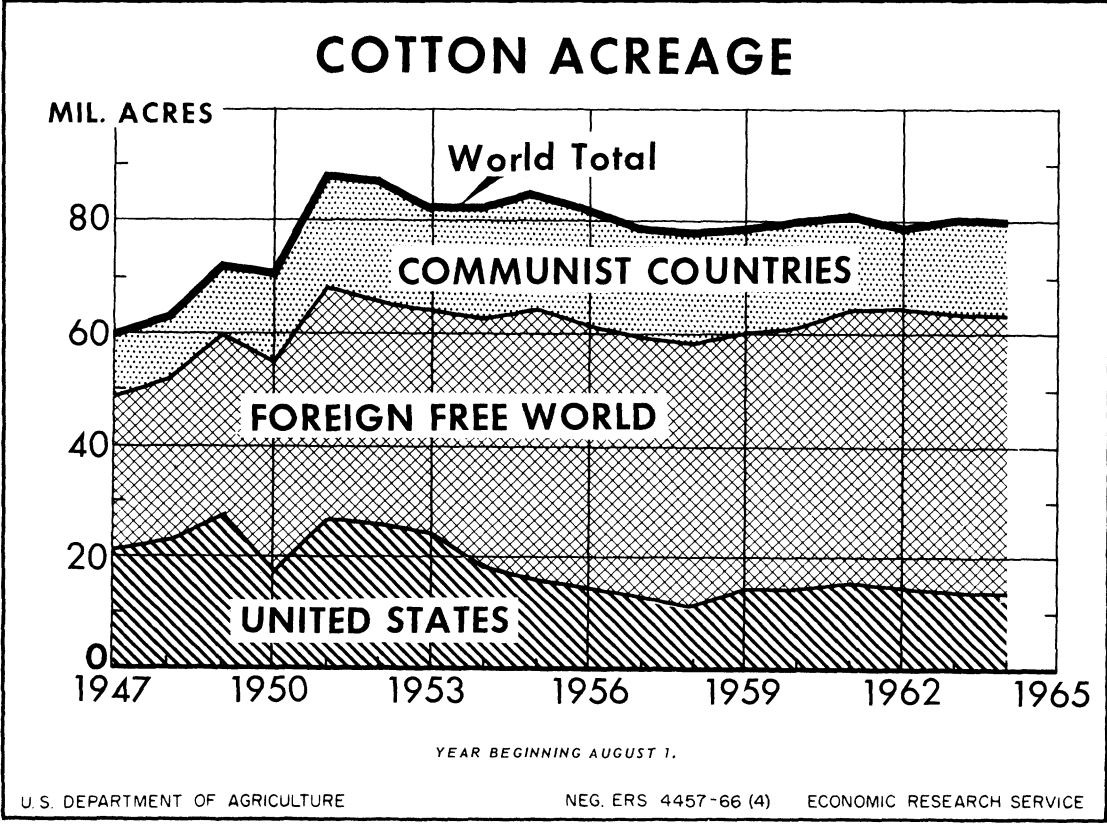
Figure 5

Table 4.--Cotton yield per acre: Foreign Free World, United States, Communist countries, and world--average for 1934-38 and 1959-63 and percentage change

Region or country	Average 1934-38	Average 1959-63	Change in yield
	Pounds	Pounds	Percent
Foreign Free World....:	138	200	45
United States.........:	212	464	119
Communist countries...:	237	353	49
World...............:	180	283	57

FFW per acre yield increased from a low of 153 pounds in 1947 to a high of 219 pounds in 1964 for an annual average rate of 2.1 percent (fig. 6). The combined increase in both acreage and yield resulted in FFW production expanding at an annual rate of 4.9 percent, or about 764,000 bales per year (fig. 3). Yields per acre increased in all FFW producing countries with the exception of Argentina and Sudan, where small decreases occurred. Increases in the other countries ranged from less than 1.0 percent in Peru to 6.7 and 7.3 percent, respectively, in Central American countries and Spain.

Although some countries experienced a decrease in acreage or yield, cotton production for 1947-64 increased in all major producing countries except Argentina, where there was no change. Annual production increases in other major countries ranged up to an increase of 18.8 percent in Spain (table 3).

During 1955-64, the fastest growth was in Central America, where production increased at an annual rate of 17.0 percent. In Argentina, production declined because yields decreased, and acreage remained about the same.

During 1947-64, consumption increased at an average annual rate of 3.6 percent while production increased at a rate of 4.9 percent. For 1955-64, consumption increased at an annual rate of 2.8 percent and production at 4.3 percent (fig. 3).

Trends in Consumption

World consumption of cotton reached a pre-World War II high of 32.2 million bales during 1936. Following this high, consumption declined during the war to a low of 22.0 million bales during 1943. After the war, consumption rose sharply to a record high of 49.7 million bales during 1964 (appendix table 13 and fig. 7). Average world cotton consumption during 1959-63 was 46.6 million bales--58 percent more than the 29.5 million average consumed in 1934-38.

The largest percentage increase in cotton consumption occurred in the Communist countries, where average annual consumption increased from 7.5 million bales for 1934-38 to 14.7 million for 1959-63. This was an increase of 96 percent, compared with the world increase of 58 percent. FFW consumption increased 49 percent, from 15.5 million bales to 23.2 million. U.S. consumption increased by 35 percent for the same period, but U.S. consumption as a percentage of world consumption fell from 22 to 18 percent (table 5).

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COTTON: YIELDS BY SPECIFIED AREAS AND WORLD*

POUNDS PER ACRE

U.S.

2.5%

4.2%

Communist Countries

2.1%

3.0%

World

2.3%

2.4%

Foreign Free World

2.1%

3.4%

AVERAGE ANNUAL RATE OF CHANGE

——— 1947-64 TREND
— — — 1955-64 TREND

YEAR BEGINNING AUGUST 1.
* PLOTTED ON RATIO SCALE WHERE EQUAL VERTICAL DISTANCES REPRESENT EQUAL PERCENTAGE CHANGES.

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Figure 6

- 11 -

COTTON CONSUMPTION

MIL. BALES *

World Total

COMMUNIST COUNTRIES

FOREIGN FREE WORLD COUNTRIES

UNITED STATES

40

30

20

10

0

1947   1950   1953   1956   1959   1962   1965

YEAR BEGINNING AUGUST 1.   * 500 POUND GROSS WEIGHT BALES.

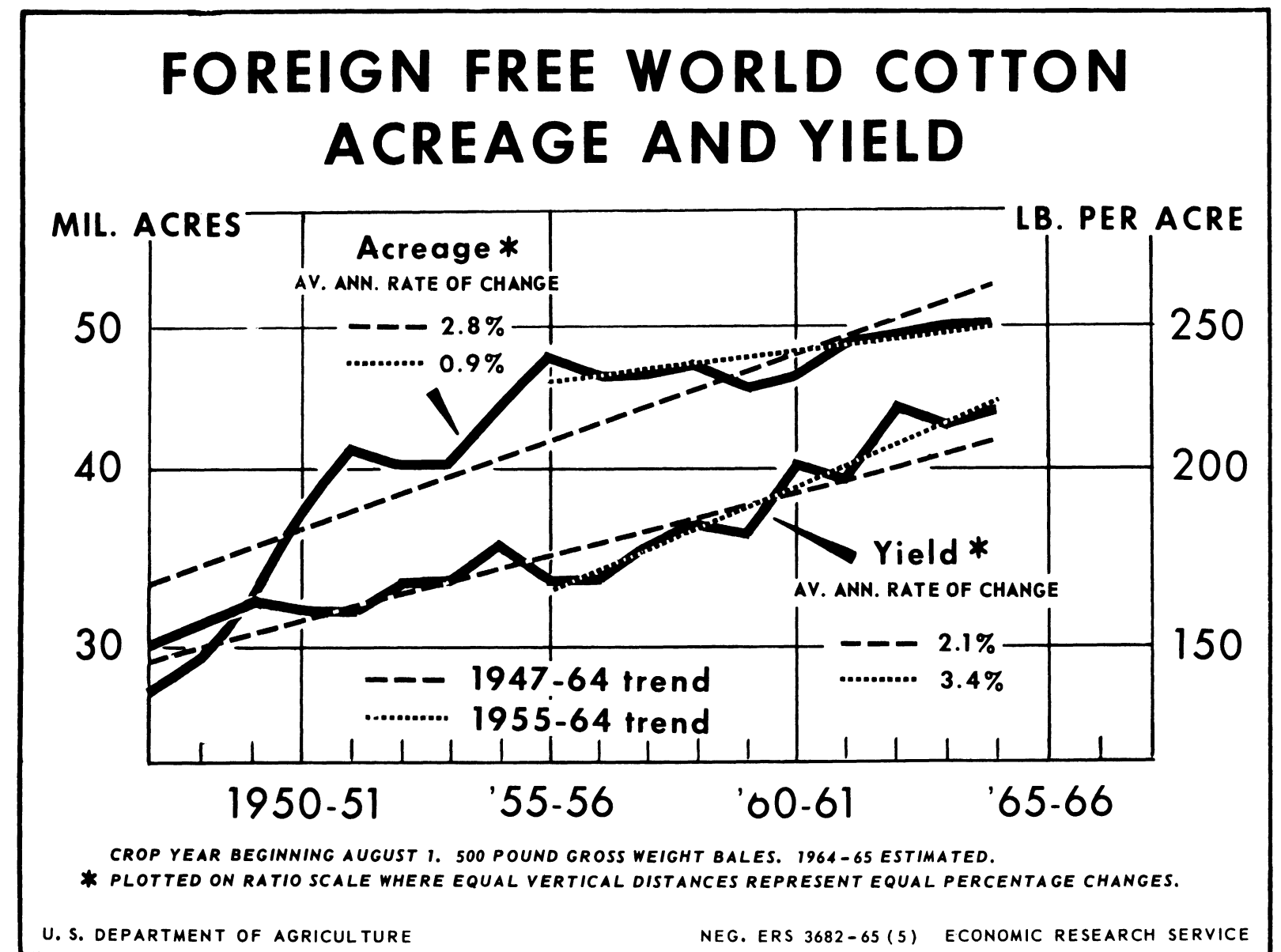U.S. DEPARTMENT OF AGRICULTURE   NEG. ERS 4455-66 (4)   ECONOMIC RESEARCH SERVICE

Figure 7

Table 5.--Cotton consumption: Foreign Free World, United States, Communist countries,
and world--annual average for 1934-38 and 1959-63 and percentage increase

Region or country	Average 1934-38		Average 1959-63		Increase in consumption
	Quantity	Share of world total	Quantity	Share of world total	
	1,000 bales	Percent	1,000 bales	Percent	Percent
Foreign Free World....	15,533	53	23,215	50	49
United States.........	6,427	22	8,657	18	35
Communist countries...	7,523	25	14,734	32	96
World...............	29,483	100	46,606	100	58

FFW countries accounted for about half of the total world mill consumption of cotton in recent years. Consumption in these countries increased sharply from 13.5 million bales in 1947 to a record 24.9 million bales in 1964. During this period, mill consumption increased at an average annual rate of 3.6 percent, or the equivalent of 685,000 bales annually. During 1955-64, the annual rate of increase was 2.8 percent or 608,000 bales per year (fig. 3).

Cotton consumption trended upward during the postwar period in all major importing and exporting countries, with the exception of the United Kingdom, Belgium, and Canada, where mill consumption of cotton either showed no significant change or

declined. The sharpest decrease occurred in the United Kingdom, where consumption declined at an average annual rate of 4.4 percent. The largest increase in consumption occurred in such textile exporters as Japan and Hong Kong.

During 1955-64, consumption continued to rise in all major countries except Argentina, the United Kingdom, France, West Germany, and Belgium. The rates of increase in consumption were generally less than for the longer period. However, in a few countries--those in Central America, for example--the rate was greater for the shorter period (table 6). Much of the increase in world consumption can be accounted for by increased consumption in foreign producing countries.

During 1947-64, world cotton consumption increased by 71 percent as world population increased by about 38 percent. On a percentage basis, world population has increased at a relatively constant average annual rate of about 2 percent during this period, while world cotton consumption increased at an average annual rate of 3 percent.

Although U.S. per capita domestic cotton consumption has trended downward in recent years, it is still the highest of any country in the world. 3/ It was 22.6 pounds per person in 1964. Per capita cotton consumption varies widely from region to region and from country to country within a geographical region. For example, per capita domestic cotton consumption averaged 2.6 pounds in Africa during 1960-62. 4/ This compares with average per capita cotton consumption of 10.8 pounds for Western Europe during the same period. In the Far East, Japan has been the leading consumer of cotton, in terms of both mill consumption and actual domestic consumption. Per capita domestic consumption in Japan averaged 11.9 pounds for 1960-62, compared with 4.6 pounds in India and about 1.5 pounds in Cambodia. Japan's per capita mill consumption of cotton for the same period averaged 16.5 pounds. This indicates the importance of Japan's textile trade in its overall demand for raw cotton.

Competition With Man-Made Fibers

World consumption of cotton has been adversely affected by the increase production and use of man-made fibers. World consumption of man-made fibers rose from 2.1 billion pounds in 1947, or 12 percent of total fiber consumption, to 10.9 billion pounds, or 29 percent of the total in 1964.

This has meant that, while the absolute level of world cotton consumption has been increasing, consumption of cotton has not increased as fast as the use of man-made fibers. The result has been a declining share of the textile market for cotton. In 1964, cotton's share of world consumption of textile fibers was about 62 percent, down from 73 percent in 1949 (appendix table 14 and fig. 8). Man-made fiber consumption has increased sharply in the FFW since the early 1950's. While the market share for wool has declined and rayon fiber has remained about the same, the use of non-cellulosic fibers (sometimes called synthetic fibers) has increased sharply.

3/ U.S. domestic cotton consumption is mill consumption plus the raw cotton equivalent of U.S. textile imports minus the equivalent of textile exports. Domestic consumption was slightly larger than mill consumption in most years in the early 1960's.

4/ The Food and Agriculture Organization of the United Nations compiles per capita fiber consumption for most countries, based on mill consumption and balance of foreign trade (6).

Table 6.--Cotton consumption: Average annual rates of change, 1947-64 and 1955-64

Area or country	1947-64	1955-64
	Percent	Percent
Canada	--	2.8
Mexico	3.9	2.4
Central America	7.8	10.4
Argentina	0.9	-2.7
Brazil	3.4	2.9
South America (less Argentina and Brazil)	4.9	5.2
Belgium	-0.4	-1.2
France	0.9	-0.2
West Germany	1.0	-0.8
Italy	1.0	3.1
Netherlands	2.3	.9
Spain	4.4	2.9
Greece	3.6	4.8
United Kingdom	-4.4	-5.2
Western Europe (total)	0.9	0.3
Hong Kong	14.5	12.2
India	2.8	2.7
Japan	4.2	3.6
Pakistan	13.5	4.5
Turkey	6.3	1.2
Asia (less India, Mainland China, Japan, and Pakistan)	10.7	5.3
U.A.R. (Egypt)	6.9	5.9
Africa (less U.A.R.)	10.4	11.3
Foreign Free World	3.6	2.8

The increased market share for non-cellulosic fibers has been the primary cause of the declining share for cotton. Cox (4) and Horne (11) indicated that the competition between cotton and man-made fibers was on the basis of price, of quality and promotion, or a combination of these and others. Donald, Lowenstein, and Simon (5) pointed out that the non-cellulosic fibers have had a significant effect on cotton consumption in the United States, because of their wide range of uses and high rates of substitution for cotton.

The non-cellulosic fibers are generally priced higher than cotton. However, with the economies of large-scale production, prices of these fibers may decline relative to cotton prices. Also, they have less processing waste than cotton, and more yarn can be spun from a given unit of non-cellulosic fiber than from a similar unit of cotton.

Donald, Lowenstein and Simon (5) developed fiber conversion factors that convert data on man-made fibers to a cotton equivalent basis. These factors adjust man-made fiber statistics to allow for differences in fiber utility, or for differences in the amount of usable fiber and yards of comparable fabric obtainable from a pound of fiber (appendix table 15). These conversion factors show the amount of cotton that would be required to replace each of the other fibers. In appendix table 15, these factors were applied to man-made fiber production figures. On this basis, 1964

COTTON CONSUMPTION

As Percent of All Fibers

YEAR BEGINNING JANUARY 1.

U.S. DEPARTMENT OF AGRICULTURE   NEG. ERS 4460-66 (4)   ECONOMIC RESEARCH SERVICE
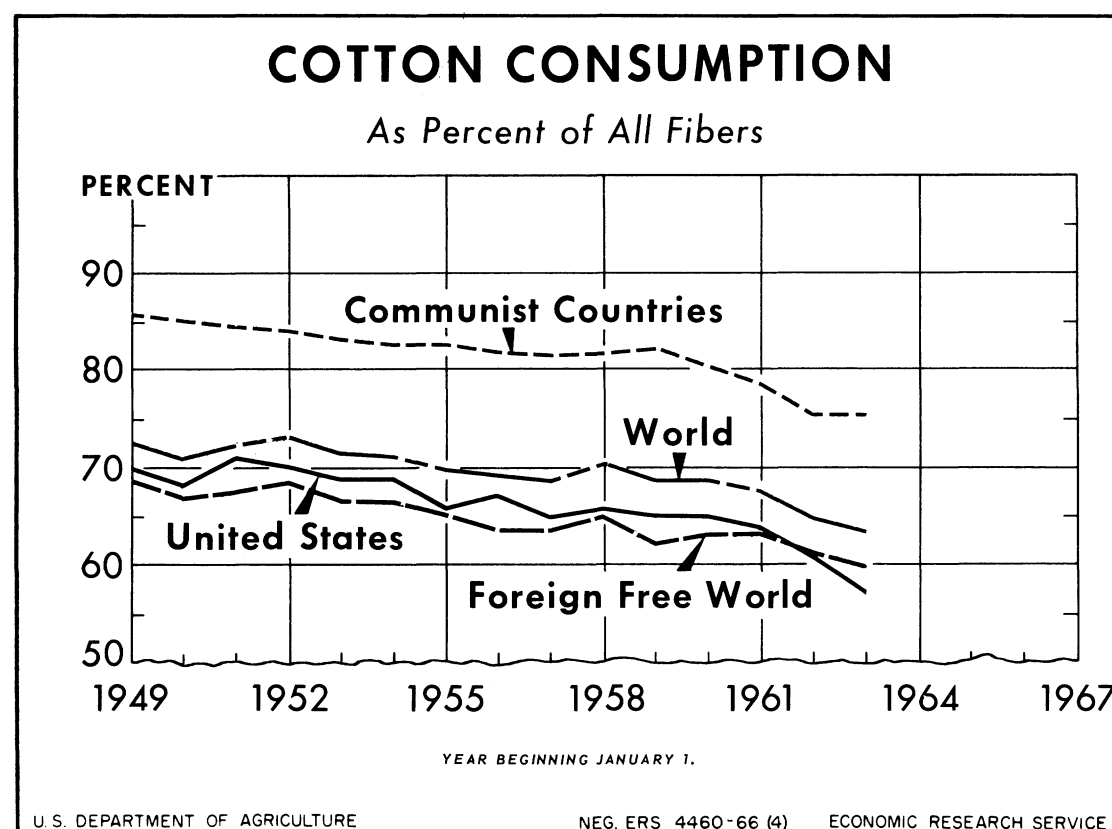
Figure 8

world production of rayon and acetate and non-cellulosic fibers of 11,309 million actual pounds totaled 16,164 million cotton equivalent pounds, or 33.7 million bales of cotton. The non-cellulosic fibers' share of total fiber consumption in the FFW increased from less than 1 percent in 1955 to nearly 8 percent in 1963 (appendix table 14). This gain for non-cellulosic fibers in the share of the total textile fiber consumption compared with a loss of 5 percentage points for cotton's share. Although cotton's share declined, total FFW mill consumption of cotton has continued to increase.

The decline of cotton's share of the textile market has been much slower in the less developed areas of the world. For example, India's cotton consumption in 1963 accounted for 92 percent of total fiber consumed, only 4 percentage points below the 96 percent in 1949. In a few countries, cotton's share of fiber consumption has increased. For example, in 1963, about 93 percent of Egypt's textile fiber consumption was cotton, up from 85 percent in 1949. The sharpest decline in cotton's share has been in the more industrialized countries of Western Europe and Japan. The largest decline occurred in the United Kingdom, where cotton's share declined from 55 percent in 1950 to less than 30 percent in 1963. Mill consumption of rayon in the United Kingdom in 1962 and 1963 exceeded that of cotton for the first time on record. This is the only country where mill consumption of rayon has exceeded cotton.

World mill consumption of man-made fibers for 1949-63 increased at an average annual rate of 7.6 percent. This increase in man-made fibers has been in both the rayon and the non-cellulosic segments of the industry, but the rate of increase has been greater for the non-cellulosic fibers (fig. 9). World consumption of non-cellulosic fibers increased at an annual rate of 22.5 percent for the period 1949-63, while rayon consumption increased at an annual rate of 5.2 percent.

- 15 -

WORLD MILL CONSUMPTION
OF TEXTILE FIBERS *

MIL. LBS.

Total Fiber 4.0%

Cotton 3.2%

Total Man-made 7.6%

Rayon & Acetate 5.2%

Wool 2.7%

Non-Cellulosic 22.5%

AVERAGE ANNUAL RATE
OF CHANGE
--- 1947-63 TREND

1949 1951 1953 1955 1957 1959 1961 1963
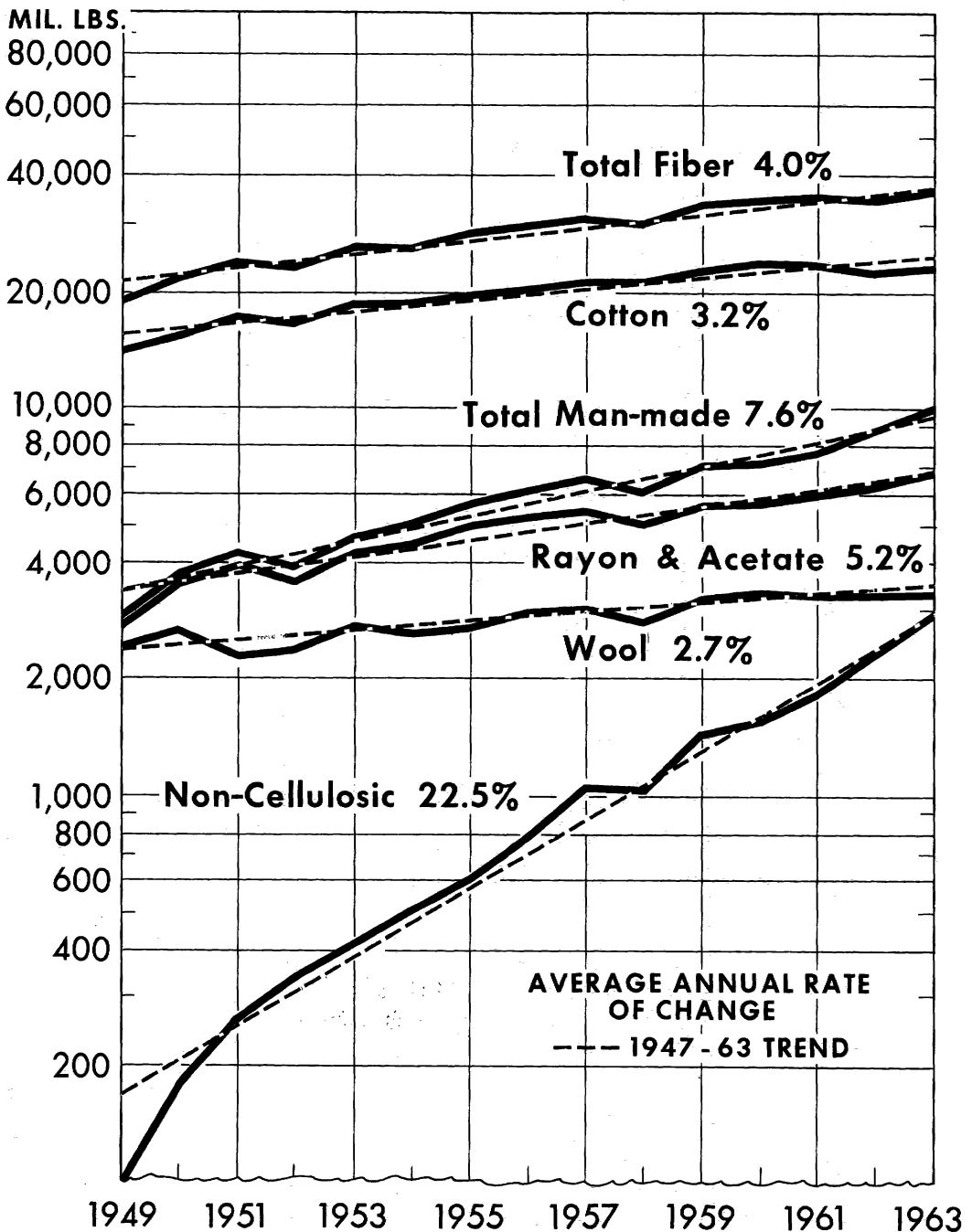
YEAR BEGINNING JANUARY 1.
***** *PLOTTED ON RATIO SCALE WHERE EQUAL VERTICAL DISTANCES REPRESENT EQUAL PERCENTAGE CHANGES.*

U.S. DEPARTMENT OF AGRICULTURE   NEG. ERS 4468-66(4)   ECONOMIC RESEARCH SERVICE

Figure 9

Mill consumption of man-made fibers in 1963 was largely concentrated in the more industrialized countries of the world, with the United States, Western Europe, and Japan accounting for about 72 percent of world consumption of these fibers (table 7). Of the 1963 total, the United States accounted for 27 percent; Western Europe, 31 percent; Japan, 14 percent; and the Communist countries, 16 percent. Man-made fiber consumption has remained relatively small in all of the major cotton producing countries of the FFW. For example, in 1963, man-made fiber consumption in Egypt and India accounted for only 6 and 7 percent, respectively, of total mill consumption of textile fibers.

Changes in Carryover Stocks

Changes in the size of world cotton stocks reflect the changes in world production and consumption in relation to each other. The size of the carryover has varied widely, generally varying with U.S. stocks. For example, world carryover increased to a record high of 29.8 million bales on August 1, 1945, but by August 1, 1948, had declined to 14.6 million bales. After increasing in 1949 and 1950, stocks declined to 12.1 million bales on August 1, 1951, the lowest since 1930. During the next 5 years, stocks increased sharply and in 1956 totaled 25.2 million bales. During the next 6 years, world consumption exceeded production, and stocks declined. During 1962-64, stocks again increased sharply (appendix table 16 and fig. 10).

Following World War II, world cotton consumption was larger than world production until 1948. The sharp postwar increase in output boosted production above consumption. The outbreak of the Korean conflict in 1950 and the sharp increase in consumption, together with a reduced world crop, resulted in world consumption exceeding production for that season. World market prices increased sharply. This increase in prices stimulated cotton production. Even though consumption was increasing rapidly, production increased faster and exceeded world consumption until 1956.

During this period of excess world production, U.S. exports of cotton declined and carryover of cotton in the United States increased to a high of 14.5 million bales on August 1, 1956. During 1956, the United States instituted cotton export programs. With lower world prices, the expansion in acreage abroad was slowed; world production declined, and again world consumption exceeded production through the 1961 season. World cotton consumption, after reaching another high in 1959, trended downward through the 1962 season when it fell below production. World consumption increased sharply during the 1963 and 1964 seasons; however, production also increased and exceeded consumption.

Most foreign producing countries do not have the physical or economic facilities to carry substantial quantities of cotton for extended periods; therefore, they dispose of their crops shortly after harvest. Foreign importing countries vary their stock positions, depending upon the present and prospective price and supply situation for textiles and raw cotton. U.S. exports of cotton vary directly with the difference between foreign production and consumption and changes in stocks.

Changes in foreign cotton stocks during any one year may greatly affect the size of U.S. exports for that year. However, over an extended time, stock changes would be expected to even out. Changes in raw cotton stocks during any one year are usually the result of speculative or precautionary factors, which are generally difficult or impossible to quantify.

Table 7.--Man-made fiber: Consumption in 1963 and percentage each area and country is of world total

Fiber	Unit	Japan	U.K.	Fed. Rep. of Germany	Italy	France	Western Europe Total	U.S.	FFW	Communist countries	World
Rayon and acetate ......:	Mil. lb.:	833	594	417	321	255	2,120	1,338	4,070	1,342	6,749
Share of world total ...:	Pct.	12.3	8.8	6.2	4.8	3.8	31.4	19.8	60.3	19.9	100
Share of foreign Free-World total ....:	Pct.	20.5	14.6	10.2	7.9	6.3	5.21	---	---	---	---
Non-cellulosic ....:	Mil. lb.:	498	205	205	113	174	875	1,294	1,466	176	2,935
Share of world total ...:	Pct.	17.0	7.0	7.0	3.9	5.9	29.8	44.1	49.9	6.0	100
Share of foreign Free-World total ....:	Pct.	34.0	14.0	14.0	7.7	11.9	59.7	---	---	---	---
Total man-made fibers ..:	Mil. lb.:	1,331	799	622	434	429	2,995	2,632	5,536	1,518	9,624
Share of world total ...:	Pct.	13.7	8.3	6.4	4.5	4.4	30.9	27.2	57.2	15.7	100
Share of foreign Free-World total ....:	Pct.	24.0	14.4	11.2	7.8	7.7	54.1	---	---	---	---

Compiled from International Cotton Advisory Committee data.

COTTON STOCKS

MIL. BALES*

COMMUNIST COUNTRIES

World

FOREIGN FREE WORLD COUNTRIES

UNITED STATES

STOCKS AS OF AUGUST 1.   * 500 POUND GROSS WEIGHT BALES.

U.S. DEPARTMENT OF AGRICULTURE   NEG. ERS 4461-66 (4)   ECONOMIC RESEARCH SERVICE
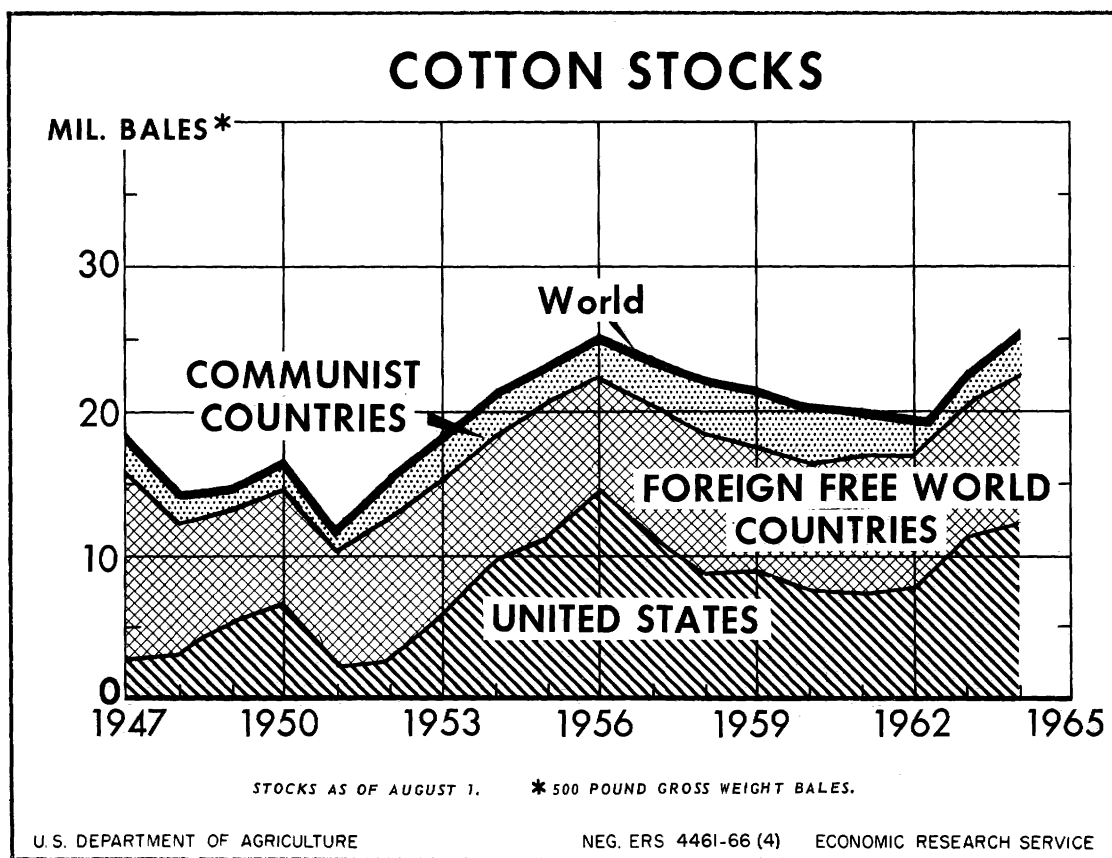
Figure 10

There were marked changes in the volume and location of cotton stocks in the postwar period. Over the five seasons ending with 1955, world production exceeded world consumption by over 15.0 million bales, and the excess accumulated in the United States. During this period, production outside the United States increased to an annual average of 26.4 million bales, compared with 16.0 million in the preceding 5 years; nevertheless, these other producing countries disposed of their production and reduced their stocks to minimum levels by the end of the 1955 season. Although U.S. production increased only slightly, from an annual average of 12.3 million bales for 1946-50 to 15.0 million for 1951-55, stocks in the United States rose from 2.3 million bales on August 1, 1951, to 14.5 million on August 1, 1956. Production increases in other countries were largely responsible for the buildup in world stocks between 1951 and 1955, with the greatest part of the surplus held by the United States.

During 1955, prices of foreign-grown cotton had declined below U.S. prices, and U.S. exports declined to 2.3 million bales. With the initiation of a U.S. cotton export sales program in 1956, U.S. and world cotton stocks were gradually reduced until 1961. During 1961, world carryover decreased 500,000 bales; however, U.S. carryover increased by 600,000 bales. The increased U.S. carryover resulted from reduced U.S. exports and from FFW stocks being reduced by 0.6 million bales. Following the decline in world stocks through 1962, world carryover increased 5.6 million bales by August 1, 1964, with 4.5 million bales of the increase being in the United States.

World Exports and the U.S. Share

World exports of cotton reached a high of 16.7 million bales during 1926, then

trended downward.   With the outbreak of World War II, world exports dropped off sharply, declining from 13.2 million bales in 1939 to 3.8 million in 1942. After 1942, world exports trended to a new high of 18.0 million bales in 1963 (table 8 and fig. 11).

The U.S. share of world exports has trended downward for many years. Before 1934, U.S. cotton exports accounted for over half of world trade in cotton. For the 1925-29 crop years, U.S. exports averaged almost 60 percent of world exports; during the war years 1940-44, they dropped to about 27 percent. The U.S. share increased to nearly 40 percent for the 5 years after the war (appendix table 12 and fig. 12). In the postwar period, world trade in cotton ranged from a low of 8.6 million bales in 1947 to a high of 18.0 million in 1963, averaging about 13.8 million bales for the period. However, world trade has not increased as much as cotton consumption. World consumption increased from 29.7 million bales in 1947 to a high of 47.4 million bales in 1963, a rise of 17.7 million bales. By comparison, world cotton exports increased only 9.2 million bales, from 8.7 to 17.9.

World cotton exports for 1947-64 increased at an average annual rate of 3.1 percent, or about 424,000 bales annually.   For this same period, world consumption of cotton increased at an annual rate of 3.0 percent, or 1.2 million bales (fig. 13).

The primary reason for the lag in world trade has been that exporting countries, such as Brazil and Egypt, are consuming a greater part of their own cotton production. Also, some former importing countries, such as Spain and Colombia, have increased their production to meet more of their domestic cotton needs. These developments have naturally tended to limit the expansion in world trade. During 1959-63, there

Table 8.--Cotton exports: World, foreign Free World, and United States, and U.S. share of world total

Year beginning August 1	: : :	World	: : :	Foreign Free World	: : :	United States	: : :	U.S. share of world exports
:	:	1,000 bales 1/	:	1,000 bales 1/	:	1,000 bales 1/	:	Percent
1947 ....:		8,646		5,851		2,065		23.88
1948 ....:		10,987		5,176		4,961		45.15
1949 ....:		12,522		5,568		6,004		47.95
1950 ....:		11,885		6,555		4,280		36.01
1951 ....:		12,181		5,270		5,711		46.88
1952 ....:		11,999		7,568		3,181		26.51
1953 ....:		13,423		7,954		3,914		29.16
1954 ....:		12,385		7,230		3,585		28.95
1955 ....:		13,131		9,235		2,320		17.67
1956 ....:		16,097		6,645		7,917		49.18
1957 ....:		14,303		6,824		5,959		41.66
1958 ....:		13,534		8,588		2,895		21.39
1959 ....:		17,472		7,978		7,392		42.31
1960 ....:		17,058		8,249		6,858		40.22
1961 ....:		15,567		8,836		5,056		32.48
1962 ....:		15,900		10,962		3,429		21.57
1963 2/ ....:		17,977		10,451		5,775		32.12
1964 2/ ....:		16,686		10,640		4,195		25.14
:								

1/ Bales of 500 pounds gross weight.
2/ Preliminary.

COTTON EXPORTS

Actual and United States as Percent of World

PERCENT

Percent U.S. of World

50

30

10

MIL. BALES.*

World Total

COMMUNIST COUNTRIES

10

FOREIGN FREE WORLD

0

UNITED STATES

1947　　1950　　1953　　1956　　1959　　1962　　1965

YEAR BEGINNING AUGUST 1.　　* 500 POUND GROSS WEIGHT BALES.
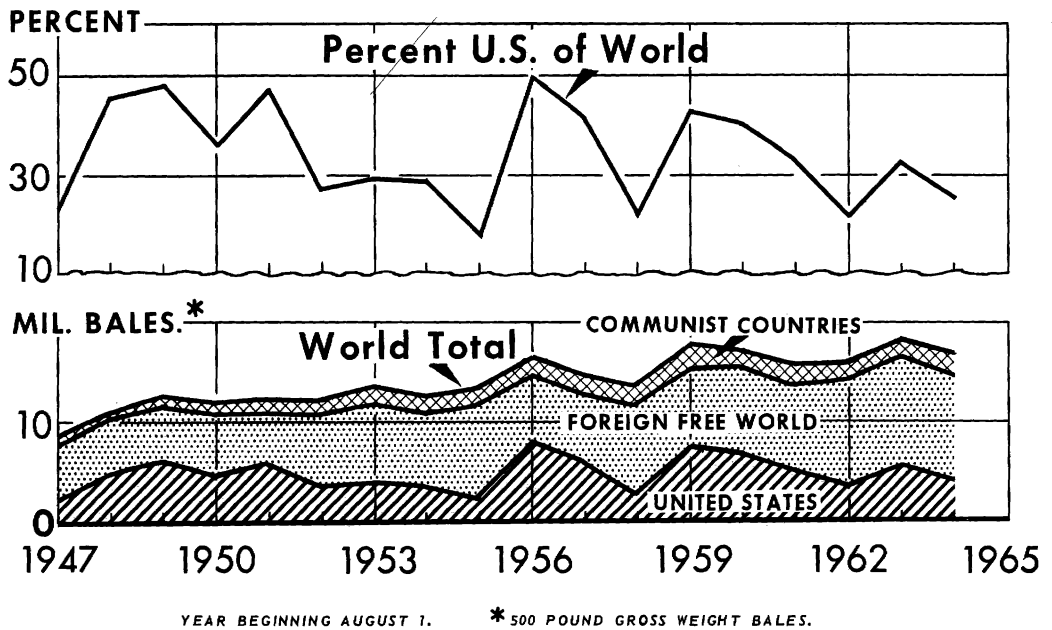
U.S. DEPARTMENT OF AGRICULTURE　　　　NEG. ERS 4462-66(4)　　ECONOMIC RESEARCH SERVICE

Figure 11

COTTON EXPORTS

United States as Percent of World

PERCENT

60

40

20

0

1925-29　'30-34　'35-39　'40-44　'45-49　'50-54　'55-59　'60-64

YEAR BEGINNING AUGUST 1.
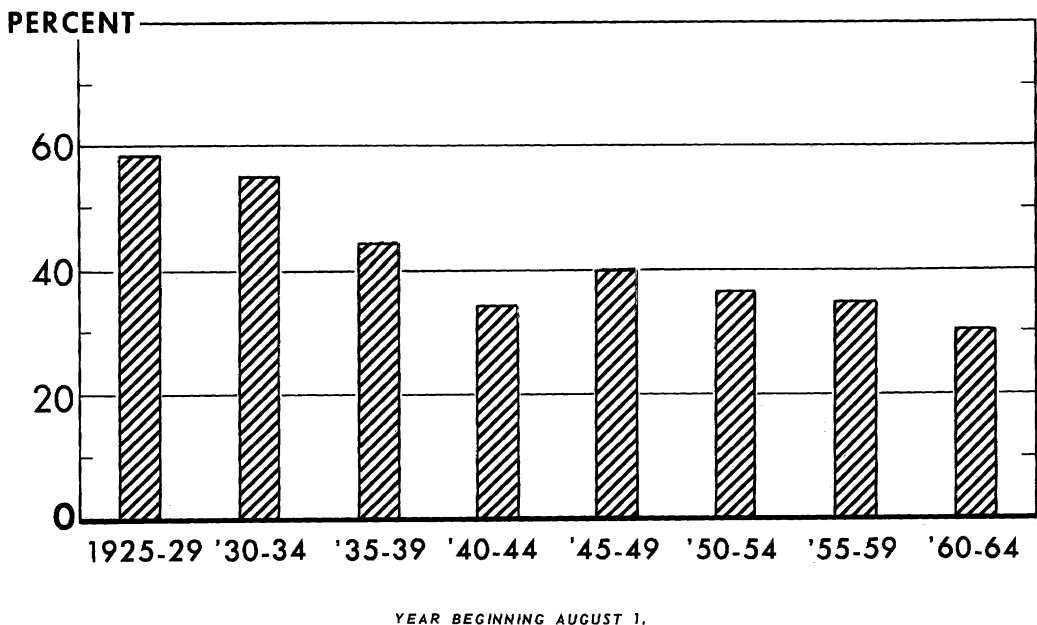
U.S. DEPARTMENT OF AGRICULTURE　　　　NEG. ERS 4463-66(4)　　ECONOMIC RESEARCH SERVICE

Figure 12

COTTON: WORLD PRODUCTION, CONSUMPTION, EXPORTS*
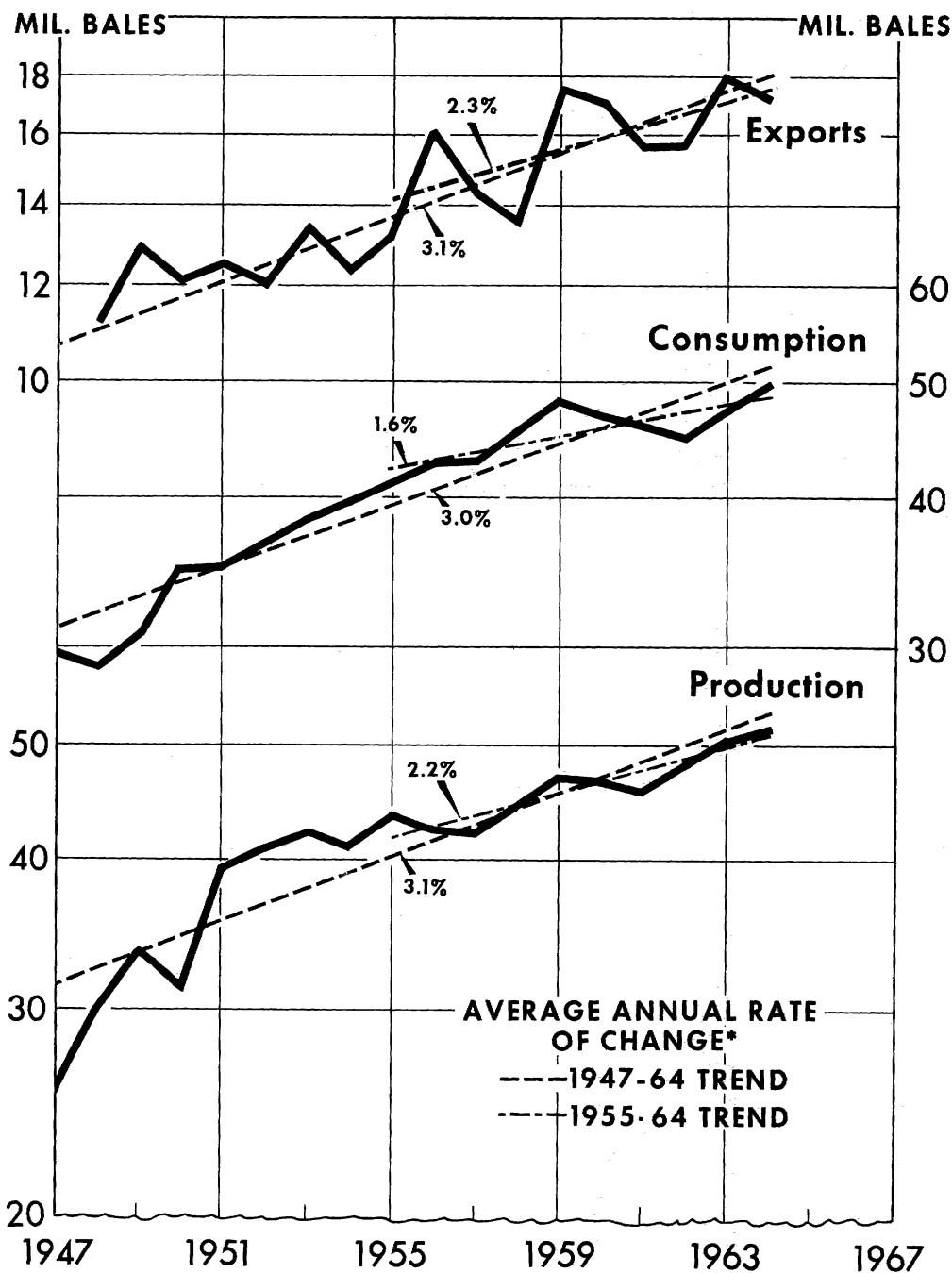
MIL. BALES

18
16
14
12
10

2.3%
3.1%

Exports

Consumption

1.6%
3.0%

MIL. BALES

60
50
40
30

Production

50
40
30
20

2.2%
3.1%

AVERAGE ANNUAL RATE
OF CHANGE*
———1947-64 TREND
—·—·—1955-64 TREND

1947   1951   1955   1959   1963   1967

YEAR BEGINNING AUGUST 1.
***** PLOTTED ON RATIO SCALE WHERE EQUAL VERTICAL DISTANCES REPRESENT EQUAL PERCENTAGE CHANGE.*

Figure 13

was a world market for an average of about 16.8 million bales, compared with 11.2 million in 1947-51. Exports from FFW countries increased from an annual average of 5.7 million to 9.3 million bales during this period, accounting for about two-thirds of the increase in total world trade. However, U.S. exports rose from 4.6 million to 5.7 million bales--only 20 percent of the total increase. The Communist countries increased exports from 1.0 to 1.8 million bales--a larger percentage gain than the United States had.

Cotton exports from FFW countries increased sharply during the postwar period. Total exports from these countries were 10.5 million bales in 1963--78 percent more than the 5.9 million exported in 1947. Nineteen FFW countries exported over 100,000 bales each in 1963, compared with 11 countries in 1947 (appendix table 17).

The sharp increase in cotton exports during this period occurred in most of the cotton-producing countries, with Mexico having the largest increase--over 1.2 million bales. The Central American countries--El Salvador, Guatemala, and Nicaragua--increased their exports from 10,000 bales in 1947 to nearly 1.1 million bales in 1964.

South America's exports increased by about 400,000 bales during 1947-63. Most of the increase was in Peru and Argentina. Brazil's cotton exports showed no marked upward trend but fluctuated widely from year to year, ranging from a low of 145,000 in 1952 to a high of 1,145,000 in 1962.

Cotton exports from Western Europe were negligible in 1947. In 1962, exports totaled 338,000 bales, over half being from Greece. Spain exported 100,000 bales during 1962 and smaller quantities in recent years, but is still a net importer.

Most cotton-producing countries of Africa increased their cotton exports from 1947 to 1963. Total exports for this period increased by 700,000 bales. Sudan's exports increased by about 500,000 bales, but exports from Egypt, the largest exporter of this area, trended downward during the period.

Cotton exports from Asia increased sharply from 1947 to 1963. Most of the increase was from Turkey, Syria, and Iran. These three countries exported only small quantities of cotton in 1947, but in 1963 they exported over 1.5 million bales.

Cotton exports from the Communist areas of the world increased from 770,000 bales in 1947 to a high of 2.1 million in 1959, and declined to about 1.7 million during 1963. Nearly all cotton exported from Communist countries is from the U.S.S.R. Although cotton exports from the Communist countries averaged 1.8 million bales annually for 1959-63, their cotton imports averaged 3.6 million bales for the same period, leaving a net cotton import balance of 1.8 million bales.

Prices of U.S. and Foreign-Grown
Cotton in Import Markets

Prices for most types and qualities of cotton fluctuated widely in foreign import markets during the postwar period. After reaching record high levels during the early part of 1951, prices declined sharply through 1958, and since then have continued a slow downward trend (appendix table 18 and fig. 14).

Immediately preceding and in the early stages of the Korean conflict, prices in world import markets advanced to more than 60 cents per pound in the first half

COTTON PRICES △

¢ PER LB.

United States
Mexican

1947 1950 1953 1956 1959 1962 1965

YEAR BEGINNING AUGUST 1.   △ AVERAGE PRICE STRICT MIDDLING 1 1/16 INCH.
C.I.F. LIVERPOOL, ENGLAND FOR U.S. AND MEXICAN GROWTHS.
* PRIOR TO 1951 ONLY ONE PRICE QUOTED FOR BOTH GROWTHS.

U.S. DEPARTMENT OF AGRICULTURE   NEG. ERS 4464-66 (4) ECONOMIC RESEARCH SERVICE
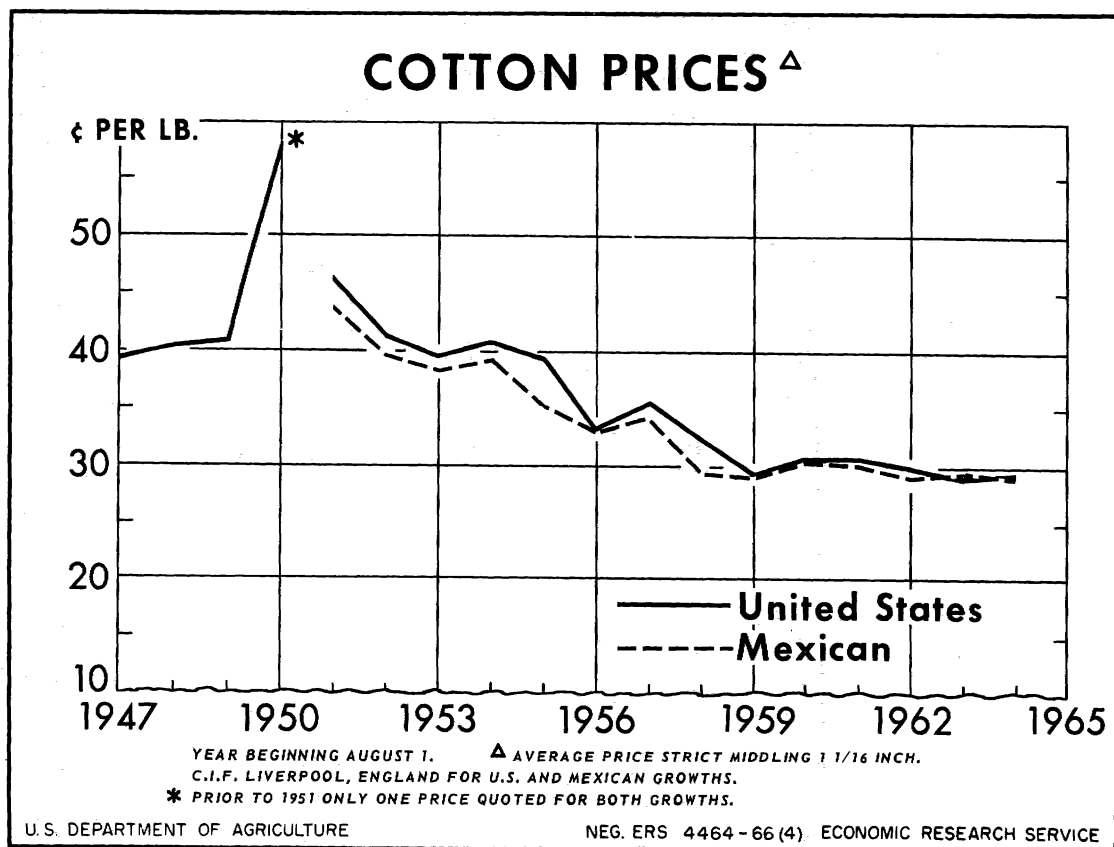
Figure 14

of 1951, for some types and qualities. The sharp rise was attributed chiefly to the threat of short supplies and the expected increase in demand connected with war needs. The 1950 crop in the United States was only 10 million bales, compared with over 16 million a year earlier. Prices declined during 1951 because of increased world production and the widely held opinion that the Korean conflict would not spread into a general war.

During the 1950's, rising world supplies of cotton continued to exert pressure on world prices, and by mid-1959, prices were at their lowest in many years. Prices strengthened over the next two seasons, reflecting the record levels of world consumption and the substantial reduction in world stocks. Although foreign consumption of cotton was increasing rapidly, production increased even more rapidly.

Price weakness since 1962 has accompanied record foreign crops and a slowdown in textile activity. Exportable supplies in foreign producing countries were offered at prices which have continued to exert pressure on world price levels.

PART II

EVALUATION OF FACTORS AFFECTING U.S. COTTON EXPORTS

World Trade and U.S. Exports

As shown in Part I, world trade in cotton and the demand for U.S. cotton exports are largely determined by the pattern of world consumption and production. This

part of the study is devoted to statistical analysis of the major economic variables that influence both world cotton trade and the demand for U.S. exports of cotton in the postwar period.

Factors Affecting World Cotton Consumption

Total world consumption of cotton is affected by many factors, only a few of which can be measured quantitatively. The major economic factors affecting the demand for cotton are (1) population, (2) general economic conditions, (3) cotton prices, and (4) prices for man-made fibers.

(1) Population--World population during 1948-63 increased from 2.4 to 3.2 billion people, an average annual growth rate of 2 percent. Population growth increases the demand for cotton as well as for other products and services and, in turn, contributes to better general economic conditions.

(2) Measure of general economic conditions--Personal income is often used as the demand shifter for consumer goods. For industrial raw materials the index of industrial production is frequently used. [5] Although cotton is both, it is more of a consumer good than a raw material. However, the world index of industrial production is used in this analysis because of its availability. No measure of world income is available. The world index of industrial production (1953=100) increased from 72 in 1948 to 165 in 1962.

(3) Cotton prices--Other conditions being constant, a decrease in the price of cotton fiber normally results in an increase in the consumption of cotton, and an increase in the price results in a decrease in consumption. The calendar-year price of U.S. cotton, SM (Strict Middling) 1 1/16 inch, c.i.f. Liverpool, averaged 39.80 cents per pound in 1948, rose to 53.72 cents in 1951, and declined to 29.54 cents in 1963. To allow for the influence of changes in the general price level, cotton prices were deflated by a wholesale price index. The index used was Comtel Reuters Commodity Index, sometimes referred to as an international commodity index (3). [6]

(4) Prices for Man-made Fibers--Man-made fibers are the closest competitors of cotton. Some of these fibers, particularly rayon and acetate staple fibers, compete with cotton primarily on the basis of relative prices. Absolute prices are of less importance in the substitution of non-cellulosic fibers for cotton.

Ordinarily in demand analysis, prices of substitutes are used as variables to measure the effect of substitution between products. However, there is no one price or price index available for man-made fibers that represents a suitable continuous series for statistical analyses. In addition, the limited price series available for man-made fibers in general are producer list prices that show small changes over time and do not represent actual prices to product manufacturers. As mentioned above, the use of the non-cellulosic fibers is related primarily to performance, quality, and market promotion. However, with large-scale production, reduced prices of these fibers are likely to further stimulate their use. Even if non-cellulosic fibers remain higher in price than cotton, they have less processing waste than

[5] Variables that relate to the general level of demand were discussed by Foote (7, p. 27).

[6] Reuters Commodity Index is a geometric average of 21 primary commodities, weighted by their relative importance in international trade.

cotton, and more yarn can be spun from a given unit of fiber than from a similar quantity of cotton. Consumption rather than price of non-cellulosic fibers was used to represent the influence of competing products.

Lowenstein (15) in a statistical analysis covering the peacetime periods of 1928-38 and 1947-60 found that most of the variation in world cotton consumption was explained statistically by the price for cotton in the United States, the world index of manufacturing, and world synthetic fiber consumption. [7] These three variables explained 98 percent of the variation in world cotton consumption.

Results of Statistical Analyses of World Demand for Cotton

A least-squares regression analysis was run for 1948-62 to measure the effect of certain factors on world consumption of cotton. The following variables were used: [8]

X_1 = World consumption of cotton (calendar year) divided by midyear estimate of world population.

X_2 = Average annual price of United States cotton SM 1 1/16 inch, c.i.f. Liverpool, deflated by Reuters Commodity Index. [9]

X_3 = World index of industrial production, 1953=100.

X_4 = World consumption of non-cellulosic fiber divided by mid-year estimate of population.

The data for X_1, X_2, and X_4 were based on calendar years. A lead of 3 months was used for X_2 (cotton prices) because of the timelag between purchase of raw cotton by mills and actual consumption.

The results of the analyses with the standard errors of estimate of the regression coefficient in parentheses, are given in the following equation.

$$X_1 = 6.2878 - 0.0421 \; X_2 + 0.0244 \; X_3 - 1.5757 \; X_4$$
$$(0.0192) \qquad (0.0055) \qquad (0.5926)$$

All of the coefficients were statistically significant at the 5-percent probability level. They explained about 92 percent of the variation in world cotton consumption from 1948 through 1962. The signs of the coefficients were as expected. Increases in the index of industrial production were found to be associated with increased consumption, while increases in cotton prices and in non-cellulosic fiber consumption were associated with decreases in cotton consumption. For the period of the analyses, a 1-cent change in price per pound was associated with a 0.04-pound change in the opposite direction in world per capita cotton consumption.

An increase of 1.0 in the index of industrial production was associated with a 0.02-pound increase in per capita cotton consumption. An increase of 1 pound in per capita consumption of non-cellulosic fibers was associated with a decrease of about 1.6 pounds in per capita cotton consumption.

---

[7] Non-cellulosic fibers are referred to as synthetic fibers in most countries.
[8] Data used in this and other analyses are shown in appendix B, page 59.
[9] Prices for SM 1 1/16 inch cotton were used because this was the only complete series available on foreign prices for the period covered.

The analysis showed that, at the 1948-62 average levels, elasticity of consumption was -0.25 with respect to price, 0.41 with respect to the index of industrial production, and -0.07 with respect to non-cellulosic fiber consumption. These elasticities represented the percentage change in the consumption of cotton that was associated with a 1 percent change in the variable under consideration, with other variables held constant. Thus, the price elasticity of -0.25 indicated that a 0.25 percent change in world cotton consumption was associated with a change of 1 percent in cotton price in the opposite direction.

The small elasticity of substitution of non-cellulosic fibers for cotton probably reflected the small use of these fibers on a world basis during this period. There were many areas of the world where consumption of non-cellulosic fibers was very small or nonexistent. Lowenstein (15) pointed out that although the elasticity of substitution of non-cellulosic fibers for cotton was small, it was a significant and much more important than was indicated by the coefficient.

In figure 15, estimated values for world mill consumption of cotton, calculated from regression equations, were plotted against actual values for the corresponding years. The estimated values were within 4 percent of the actual values for all years. As there was about 8 percent of the variation in world mill consumption of cotton unexplained by the analysis, some deviations would be expected. The deviations for the early 1950's were probably a result of the partial disruption of the market structure by the Korean conflict.

Another possible source of unexplained variation in the analysis was fluctuation in inventory of cotton fabric. For example, a buildup in inventories during a given year might lead to a decrease in excess inventories and reduced mill consumption the following year. Donald, Lowenstein, and Simon (5) pointed out that a measure

COTTON CONSUMPTION, PER CAPITA
WORLD

YEAR BEGINNING JANUARY 1.

U.S. DEPARTMENT OF AGRICULTURE   NEG. ERS 4465-66 (4)   ECONOMIC RESEARCH SERVICE
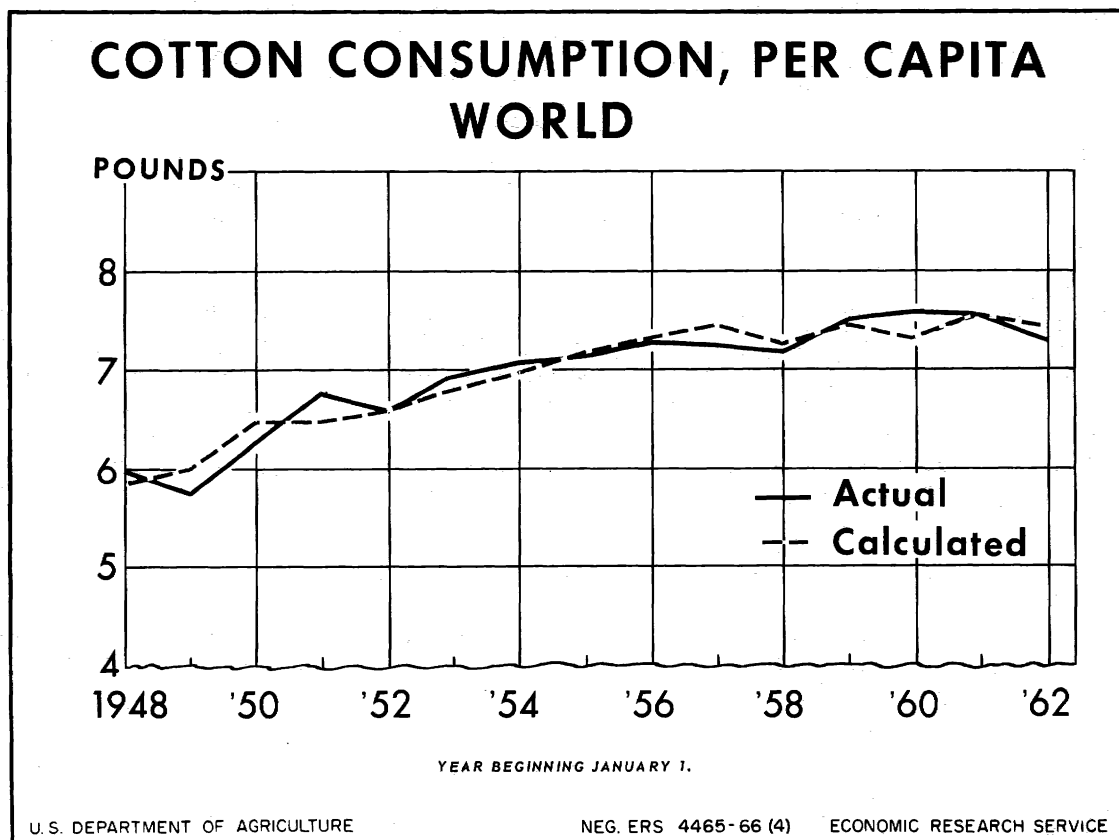
Figure 15

of inventory imbalance was an important determinant of the variation in mill consumption of cotton in the United States. Data for world inventories or stocks of cotton fabrics were not available for statistical analysis.

Analysis of World Production

No attempt was made to analyze statistically changes in world production of cotton. In the major producing country, the United States, the amount of land devoted to cotton during the period studied was largely determined by Government programs and not by economic forces. Walsh (17), in a study of U.S. production covering 1910-24 and 1925-33, found that the elasticity of cotton production with respect to price of cotton, computed at mean levels, was 0.22 and 0.25, respectively, for the two periods. In a later section, statistical analyses are made of acreage in the FFW where cotton acreage is more affected by economic factors.

Analyses of Factors Affecting U.S. Exports of Cotton to Free-World Countries

The analyses and discussions of factors affecting U.S. cotton exports were generally limited to FFW countries. These countries were the major outlet for U.S. cotton because only small quantities of U.S. cotton were imported by Communist countries. In addition, reliable data were not available for some countries. Therefore, the Communist countries were omitted from the analyses.

Foreign consumption and production have trended upward since World War II, with production increasing slightly faster than consumption. As a result, the difference between production and consumption has narrowed. During 1947-64, production increased from 8.9 million bales to 22.9 million--an average annual rate of 4.9 percent or 764,000 bales. At the same time, consumption increased from 13.5 million bales to 24.9 million--an average annual rate of 3.6 percent or 685,000 bales (fig. 3). This means that if the United States is to maintain or increase cotton exports, either foreign consumption must increase at a faster rate or the rate of increase in foreign production will have to decline, or some combination of these two movements must occur.

Data for some FFW countries were not available, so 43 countries, for which most of the necessary economic data were available, were selected to represent the FFW for the 1948-63 consumption analysis. These 43 countries accounted for 88 percent of the total mill consumption of cotton in the FFW during the 1963 calendar year. Earlier years were not included because data were not available for many of the countries, and World War II and the postwar recovery would have heavily influenced mill consumption in those years.

Factors Affecting Foreign Free-World Cotton Consumption

Variables used in the analysis of FFW mill consumption of cotton included (1) mill consumption of cotton, (2) cotton prices, (3) real income, and (4) consumption of man-made fibers.

(1) Mill consumption of cotton--Consumption in 43 countries was totaled for each calendar year. Mill consumption was then coverted to a per capita basis, using midyear estimates of population of the same 43 countries.

(2) Cotton price--The price of U.S. cotton Strict Middling 1 1/16 inch, c.i.f. Liverpool, was used to represent the FFW price. To remove the influence of change in the general price level, cotton prices were deflated by a wholesale price index for the 43 countries. The wholesale price index used was computed for the 43 countries by weighting each country's wholesale price index by its mill consumption of cotton.

(3) Real income--National income of the 43 countries was converted to equivalent U.S. dollars through conversion factors published by the United Nations. Income, in U.S. dollars, was then converted to a per capita basis by the midyear estimate of population. To derive a per capita real income figure, income in U.S. dollars was divided by the cost-of-living index for the 43 countries. The aggregate cost-of-living index was computed by weighting each country's cost-of-living index by its mill consumption for that year.

(4) Consumption of non-cellulosic fibers--Mill consumption for the 43 countries was totaled for each calendar year. Mill consumption was then converted to a per capita basis using the midyear estimates of population for the 43 countries.

Results of Statistical Analysis

A least-squares regression was run for 1948 through 1963. The following variables were included for the 43 countries representing the FFW:

X_1 = Mill consumption of cotton, divided by the midyear estimate of population.

X_2 = Average annual price of U.S. cotton, Strict Middling 1-1/16 inch, c.i.f. Liverpool, deflated by wholesale price index (1958=100).

X_3 = National income converted to U.S. dollars, divided by population, and deflated by cost-of-living index (1959=100).

X_4 = Mill consumption of non-cellulosic fibers, divided by midyear estimate of population.

The data for X_1, X_3, X_4 were based on calendar years. A lead of 3 months was used for X_2 (price) variable to allow for the timelag between purchase of cotton and mill consumption.

The following regression equation shows the effect of the three factors on mill consumption of cotton in the foreign Free World.

$$X_1 = 6.2375 - \underset{(0.0104)}{0.0437} X_2 + \underset{(0.0026)}{0.0077} X_3 - \underset{(0.2913)}{0.4800} X_4$$

All of the coefficients were statistically significant at the 5-percent probability level with the exception of X_4, non-cellulosic fiber consumption. They explained about 85 percent of the variation in FFW mill consumption of cotton during 1948 through 1963. The results of this analysis differed slightly from the world consumption analysis, because of both different consumption data and factors used in the analysis. The signs of the coefficients were as expected. Increases in income were found to be associated with increased consumption, while increases in cotton prices and in non-cellulosic fiber consumption were associated with decreases in cotton consumption.

- 29 -

Figure 16 shows the relationship between estimated values and actual values of the analysis. The relatively large deviations in the early 1950's were probably associated with the increased demand resulting from the Korean conflict.

The analysis showed that a 1-cent-per-pound change in the Liverpool price of cotton, with other factors held constant, was associated with a change in the opposite direction of 0.04 pound in FFW per capita mill consumption of cotton. Converting this to bales of cotton showed that a 1-cent-per-pound reduction in the deflated Liverpool price of cotton would result in a 178,000-bale increase in FFW consumption at 1963 population levels.

Per capita income was shown to be an important determinant of FFW cotton consumption. On the average, a $10 increase in real per capita income was associated with an increase of 0.07 pound in per capita cotton consumption. This would be equal to about a 300,000-bale increase in mill consumption of cotton at 1963 population levels.

Although the coefficient for non-cellulosic fiber consumption was not statistically significant at the 5-percent level, it gave some indication of substitution between cotton consumption and non-cellulosic fiber consumption. For the period of the study, per capita mill consumption of non-cellulosic fibers was small (less than 1 pound per year, except in 1962 and 1963); and in many FFW countries only small quantities were consumed. Prices for rayon and acetate fibers suitable for statistical analysis were not available.

Elasticity of Demand for Cotton

The regression equation of the previous section showed the physical quantity change in cotton consumption with a change in one factor when the other factors were held constant. Often it is helpful to express these relationships in terms of elasticity, especially for use in comparing different relationships. Elasticity is the ratio of the percentage change in consumption of a commodity to the associated percentage change in another factor. The elasticity of demand, with respect to price, for cotton consumption by foreign mills was the ratio of the percentage change in consumption of cotton to the associated change in the price for cotton. The elasticity of demand for cotton with respect to price, computed at the mean values for 1948-63, was -0.27. This showed that a 0.27 percent change in cotton consumption was associated with a corresponding change of 1 percent in the price of cotton in the opposite direction.

This estimate of price elasticity was somewhat higher than was derived in earlier works for foreign mill consumption. Howell [12] estimated the price elasticity of demand for foreign mill consumption of cotton in the interwar period (1921-28) to be -0.17. Blakely [1], using the limited-information technique covering 1921-40 and 1947-56, derived a short-run price elasticity of foreign mill consumption of -0.13. This compared with -0.07 for the same period when he used the Theil-Basman technique. Fowler stated that, for foreign countries during the interwar period, "the estimate of the elasticity of mill demand with respect to price varied from about -0.10 to -0.31, although most of the estimates were of the general order of -0.10 to -0.14. One long-run elasticity estimate of -0.31 and one of -0.21 were obtained." [10] The International Cotton Advisory Committee [13] estimated the price elasticity at about -0.2 for a group of 14 European countries in the postwar period. The price elasticity obtained in the present study also was somewhat higher

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[10] Fowler, Mark L.: An Economic Statistical Analysis of the Foreign Demand for American Cotton. Unpublished Ph.D. dissertation, Univ. Calif., Berkeley, 1961.

than that estimated for the United States in a recent study. Donald, Lowenstein, and Simon (5) estimated values for U.S. domestic consumption of cotton for a combined period of interwar and postwar years. They found that, for the United States, demand elasticity with respect to price was -0.14, compared with the -0.27 derived for FFW countries in the postwar years, indicating that price changes in the FFW may have a larger effect on cotton consumption than price changes have on U.S. consumption. This larger price coefficient for cotton consumption in the FFW would seem logical in view of differences in the level of income, level of cotton consumption, and the increasing availability of lower-priced man-made fiber substitutes in foreign countries. The U.S. demand elasticity with respect to price was found to be somewhat higher when the analysis was based primarily on interwar years, before non-cellulosic fibers were important. In a study covering the years 1920-40 and 1947-52, Lowenstein (15) estimated that the price elasticity was 0.20 for the United States.

The elasticity of demand, with respect to income, for FFW mill consumption computed at mean values was 0.35. This showed that a 0.35 percent change in mill consumption was associated with a change of 1 percent in FFW income in the same direction. This income elasticity coefficient was below that obtained by others. The International Cotton Advisory Committee (13) estimated income elasticity for a group of 14 European countries in the postwar period at 0.5. Fowler (8), using various methods, obtained estimates of income elasticity ranging from 0.52 to 0.59 for a group of about 50 FFW countries in the postwar periods 1948-50 and 1952-54.

<u>Factors Used in Statistical Analysis</u>
<u>of Foreign Free-World Cotton Acreage</u>

Production of cotton was determined by the acres planted to cotton and the yield per acre. Each of these factors was affected by many complex and interrelated
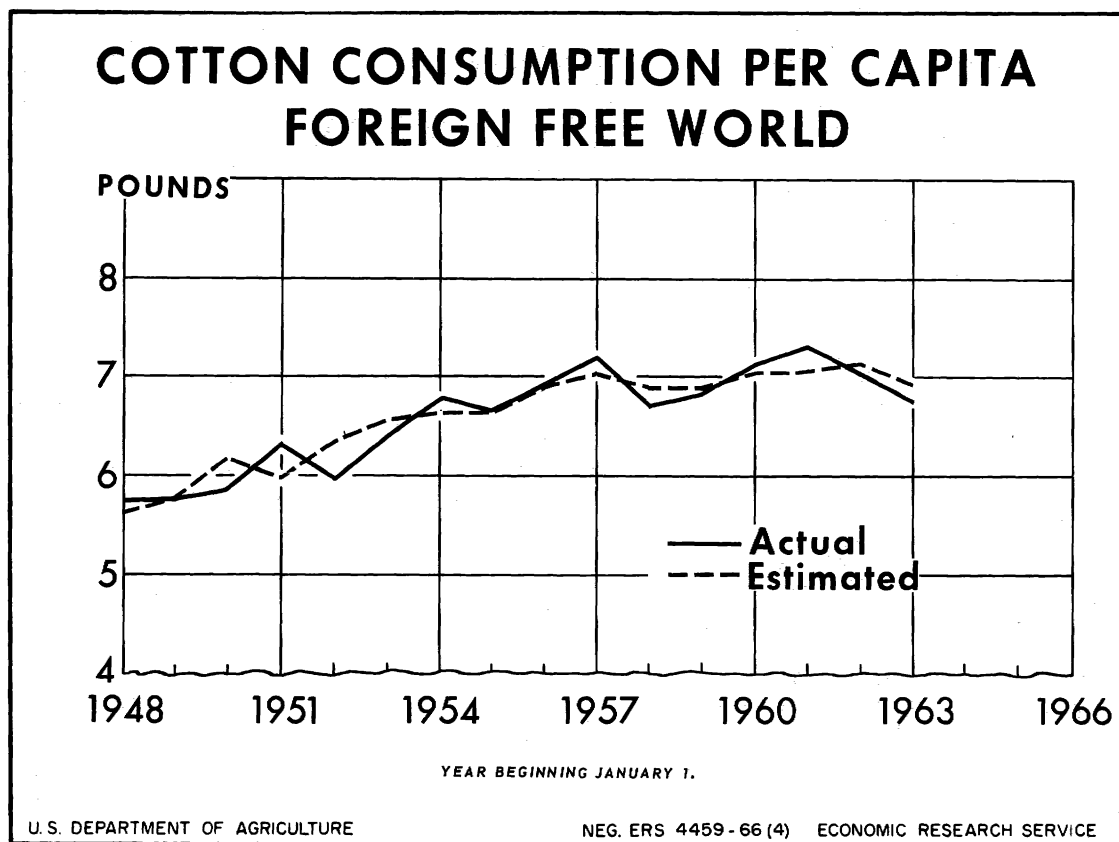
Figure 16

forces. Goering (10) pointed out that the cotton economies of most of these countries were isolated to various degrees from the free play of world prices and that individual domestic economic goals were achieved by measures such as cotton-export taxes, price-support programs, and export and import restrictions.

World cotton prices, however, would be expected to have an important impact on cotton acreage and production in FFW countries. To determine this relationship, FFW acreage was correlated with cotton prices. Cotton acreage was used instead of production because acreage was more responsive to prices in that production was affected by yields, which in turn may be dependent upon growing conditions, such as weather. Factors used in the analysis included (1) FFW cotton acreage, (2) cotton price, and (3) trend.

(1) <u>Cotton acreage</u>--Total foreign cotton acres planted to cotton minus cotton acres of the Communist countries.

(2) <u>Cotton prices</u>--The price of U.S. cotton, Strict Middling 1 1/16 inch, c.i.f. Liverpool, was used to represent the FFW price of cotton. As there would be a timelag between changes in cotton prices and acreage response, a lead of 1 year was used for the price variable in the analysis.

(3) <u>Trend</u>--Trend factors were included in the analysis to account for factors mentioned earlier that cannot be isolated or quantified.

Results of Statistical Analysis

A least-squares regression was run for 1948-63. The following variables were included:

X_1 = FFW cotton acreage

X_2 = Average annual price of United States cotton, Strict Middling 1 1/16 inch, c.i.f. Liverpool.

X_3 = Time trend, 1949-55.

X_4 = Time trend, 1956-63.

X_5 = Zero-one variable

The data for the variables were based on a crop year beginning August 1. A lead of 1 year was used for X_2 (price) in the analysis to allow for the timelag between changes in cotton prices and acreage response. Producers' decisions on how much cotton to plant were made on the basis of prices received for cotton the previous year. The trend factors, X_3 and X_4, were used to account for the various factors affecting cotton acreage that could not be quantified for inclusion in the analysis. The zero-one variable (X_5) was included to account for the change in the trend from 1948-55 to 1956-63 (fig. 17).

The sharp upward trend during the earlier years of the analysis resulted not only from restoration of prewar cotton acreage in producing countries, but also from initiation of cotton production in countries that had not produced it before the war. For example, in India (including present-day Pakistan), cotton acreage averaged about 24.0 million acres annually just before World War II. During the

COTTON ACREAGE: FOREIGN FREE WORLD*

MIL. BALES

Trend —·— 6.0%
        —·— 1.2%
        — — 2.7%

AVERAGE ANNUAL RATE
OF CHANGE
— — —1948-63 TREND
—·—·—1948-55 and 55-63 TRENDS

1948   1952   1956   1960   1964

YEAR BEGINNING AUGUST 1.
＊ *PLOTTED ON RATIO SCALE WHERE EQUAL VERTICAL DISTANCES REPRESENT EQUAL PERCENTAGE CHANGES.*

U.S. DEPARTMENT OF AGRICULTURE   NEG. ERS 4466-66(4)   ECONOMIC RESEARCH SERVICE
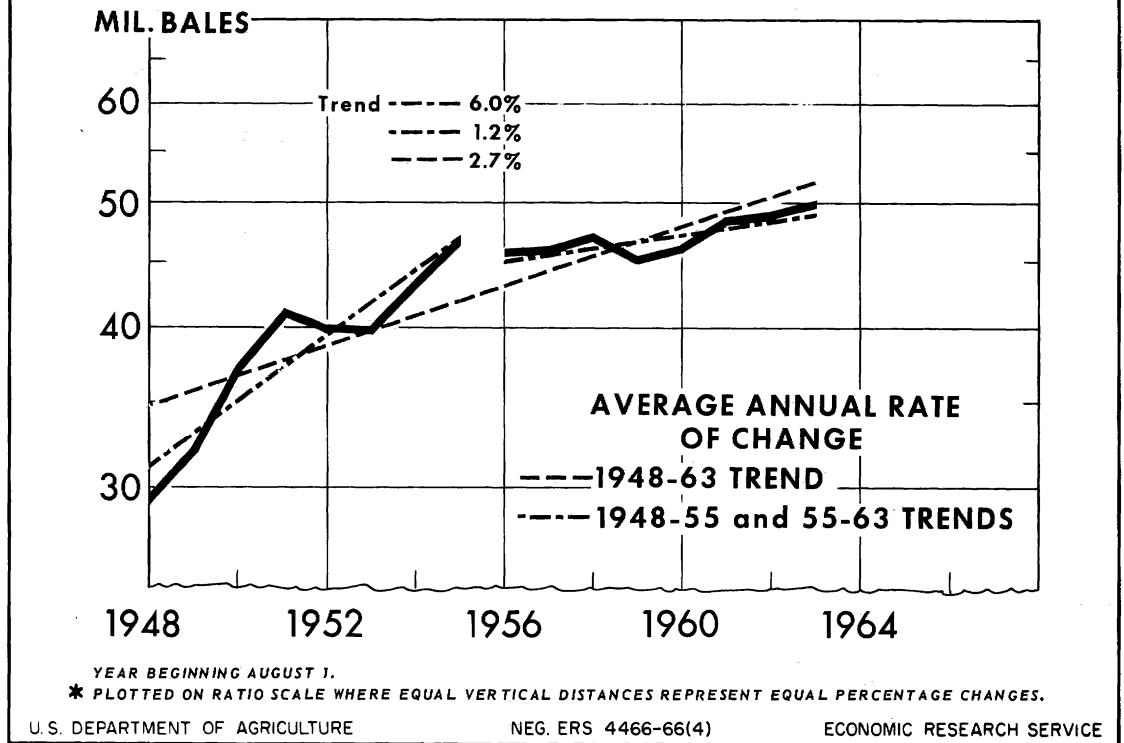
Figure 17

war, acreage declined to a low of about 14.0 million acres in 1945; then it increased through 1955.

Total cotton acreage in Central America averaged about 50,000 acres annually before the War. By 1955, cotton acreage there had increased to approximately 499,000 acres. FFW cotton acreage continued to increase after 1955 but at a slower rate.

The results of the analyses were: 11/

1948-55
$$X_1 = 18.6992 + 0.2278 \, X_2 + 2.2644 \, X_3$$
$$(0.0670) \qquad (0.1783)$$

1956-63
$$X_1 = 29.5355 + 0.2278 \, X_2 + 0.8059 \, X_4$$
$$(0.0670) \qquad (0.1936)$$

All of the coefficients were statistically significant at the 5-percent probability level. They explained 97 percent of the variation in FFW cotton acreage during 1948 through 1963. The figures in parentheses are the standard errors of estimate of the regression coefficients. The regression coefficients, for all variables, had the expected sign. Increases in cotton prices were associated with increases in FFW cotton acreage.

11/ The two equations were derived from the following regression equation.
$$X_1 = 18.6992 + 0.2278 X_2 + 2.2644 X_3 + 0.8059 X_4 + 10.8363 X_5.$$

Figure 18 shows the relationship between the estimated values and the actual values for cotton acreage used in the analysis. All estimated values were within 4 percent of the actual values, except for the 1950 and 1953 seasons. The relatively large deviation, about 6 percent, for 1950 probably was associated with the anticipated increase in prices for cotton as a result of the Korean conflict. By 1952 world cotton prices had declined from the record-high prices for the first half of 1951. The expectation of further declines in cotton prices during 1953, together with rising carryover stocks of cotton, likely affected producers' decisions to plant less cotton for the 1953 crop. This would tend to explain the larger than average deviation, between the estimated and actual values of the 1953 crop.

The analysis shows that a 1-cent change in the Liverpool price of cotton was associated with a change in the same direction of 227,820 acres of cotton. This suggests that a reduction in price of 1 cent a pound would result in a reduction the following year of about 228,000 acres of cotton. At 1963 yields, this would represent about 100,000 bales of cotton. The trend factor for 1948-55 was associated with an increase of over 2.2 million acres annually. For 1956-63, the trend factor was associated with an increase of about 800,000 acres annually.

Elasticity of Acreage in Foreign Free World

The elasticity of acreage with respect to price for the FFW is the ratio of the percentage change in cotton acreage to the associated percentage change in the price for cotton in the preceding year. The elasticity of acreage, with respect to price, computed at the mean values for 1948-63 is 0.20. This shows that a 0.20 percent change in FFW acreage was associated with a change of 1 percent in cotton

COTTON ACREAGE

Foreign Free World

MIL. ACRES

——— Actual
– – – – Calculated

YEAR BEGINNING AUGUST 1.

U.S. DEPARTMENT OF AGRICULTURE   NEG. ERS 4458-66(4)   ECONOMIC RESEARCH SERVICE
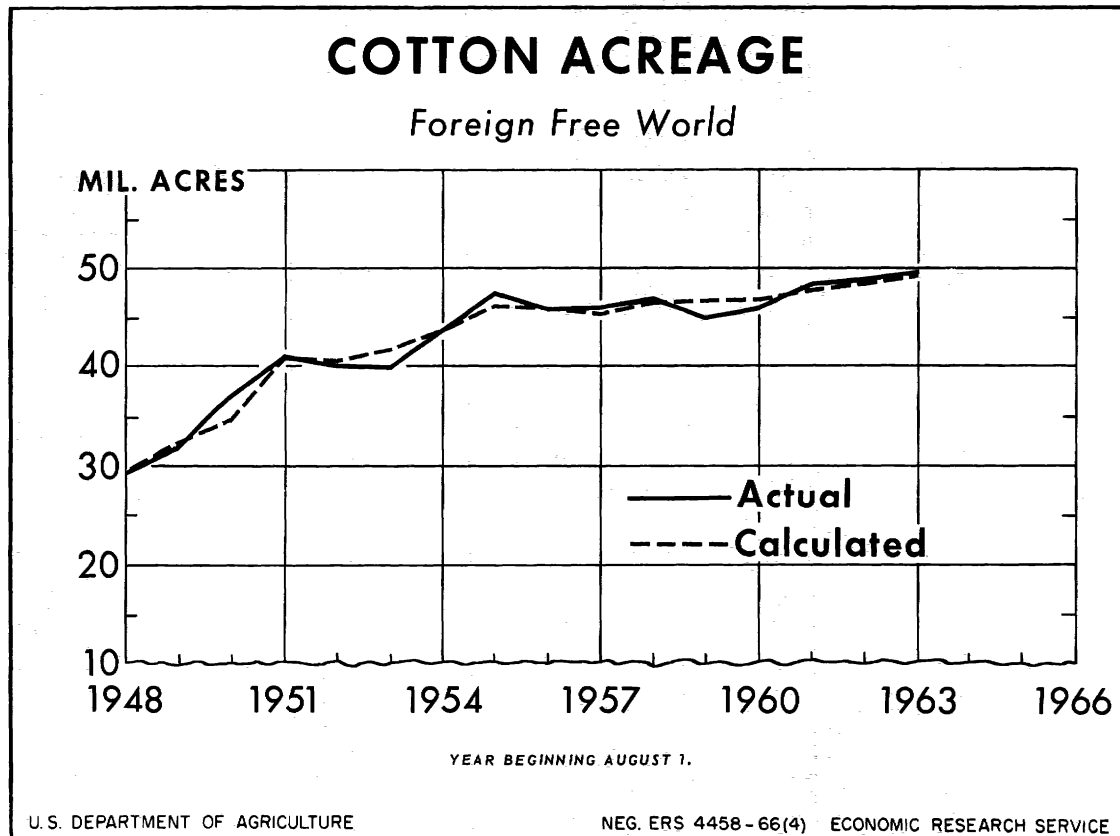
Figure 18

price in the same direction. This elasticity can be applied directly to production as well as acreage by assuming that yield per acre will remain unchanged with a change in acreage. For example, assume that 100,000 acres of cotton, with a 240-pound-per-acre yield, would give a total production of 50,000 bales. A 10-percent increase in price would result in a 2.0 percent increase in acreage planted. This would increase acreage to 102,000 acres and, using the same 240-pound yield, would give a production of 51,000 bales. The elasticity coefficient applied to the original production of 50,000 bales also results in production of 51,000 bales.

Combined Effects of Price Change on Foreign
Free-World Production and Consumption

The analyses presented in previous sections showed that a 1-cent change in deflated world cotton prices, with other factors unchanged, resulted in a 178,000-bale change in the opposite direction in cotton consumption. However, this is on a deflated-price basis. The price deflator used was the weighted wholesale price index for 43 countries. This index was 132 for 1963. Thus a 1-cent price change in 1963 dollars would result in a 135,000-bale change in cotton consumption in the opposite direction. The other analysis showed that a 1-cent change in cotton prices resulted in a 100,000-bale change in the same direction, in cotton production.

Assuming there were no foreign stock changes, U.S. cotton exports to the FFW would equal the amount by which production was short of consumption in the FFW countries plus FFW net exports to Communist countries. Thus, the combined effect of a 1-cent-per-pound change in the Liverpool price of U.S. cotton would be expected to result in a 235,000-bale change in the opposite direction in the demand for U.S. cotton exports by FFW countries (table 9). This does not include any change that might occur in net FFW exports to Communist countries.

Table 9.--Effect of a 1-cent reduction in world cotton prices on foreign Free-World production, consumption, and U.S. exports at 1963 price and yield levels

Item	Change
	Bales
Consumption................................:	+135,000
Production.................................:	-100,000
U.S. exports 1/............................:	+235,000

1/ Assuming there would be no change in FFW stocks. U.S. exports to the FFW would equal the combined change in production and consumption.

In a recent bulletin, Waugh (18) discussed the relationship between short-run and long-run demand in the domestic market. Using the price and consumption ratios between cotton and rayon, he found that changes in the price ratio did not have a large immediate effect upon the consumption ratio. He did find that there was a lag, and that the lag appeared to be spread over several years. In an analysis of the 1921-40 and 1947-56 periods, Blakley (1) derived long-run elasticities of foreign mill consumption of -0.66 by using the limited-information techniques, and -0.35 by using the Theil-Basman technique. Short-run elasticities were -0.13 and -0.07 in the same analysis. There is a need for additional work on the lag between price changes and changes in consumption.

The fact that the effects of changes in cotton prices are not immediate should be recognized. Thus, the response of consumption and production to a 1-cent price change may be greater than 235,000 bales over a period of time. In the case of consumption, a lag in response to a price change reflects the time lag between marketing cotton and manufacturing it, and the difficulty which cotton users have in shifting to other fibers after styles and production plans have been set. Both time and costs are involved in the adjusting of machines and crews when one fiber is substituted for another. Production for similar reasons, would also be slow to respond to a price change.

Relative Prices and U.S. Cotton Exports

In a particular year, the U.S. export price and the price of U.S. cotton relative to the price of foreign cotton are probably the most important factors in determining the U.S. share of the world trade in cotton. Prices for U.S. cotton in Liverpool markets have generally averaged higher than for comparable foreign cotton since 1951 (comparable price quotations are not available prior to 1951). A comparison of prices for U.S. and Mexican cotton of comparable staple and quality (SM 1 1/16-inch cotton, c.i.f. Liverpool) for the past 12 years show that U.S. prices have averaged about 4 percent higher (fig. 14). There was little shift in foreign buying from U.S. to Mexican cotton in the years when the price differential was less than 2 or 3 percent. However, during the 1955-56 and 1958-59 fiscal years, when prices for U.S.-grown cotton were more than 10 percent above prices for Mexican cotton, there was a large shift to Mexican and other foreign cotton and U.S. commercial cotton exports dropped sharply. Conversely, when U.S. prices were closely competitive or below prices for competitive cotton, U.S. exports increased. This has been particularly true when foreign importers have anticipated future price advances for U.S. cotton and have built up inventories.

A statistical analysis was made to show the effect of the relative prices of U.S. and foreign cotton on U.S. exports. Variables used in the analysis of U.S. commercial exports with respect to the relative price of U.S. and foreign cotton include:

X_1 = U.S. commercial exports--Total U.S. cotton exports, year beginning July 1, minus those exports financed by the U.S. Government (appendix table 19).

X_2 = Cotton price--The price of U.S. cotton Strict Middling 1 1/16 inch, c.i.f. Liverpool, year beginning January 1, deflated by Reuters Commodity Index (3), was used to represent the world price of cotton.

X_3 = The price ratio of U.S. grown cotton, Strict Middling 1 1/16 inch, c.i.f. Liverpool, year beginning January 1, to the price of Mexican grown cotton of comparable quality in the same import market.

A least-squares regression was run for 1948-63. A 6-month lead was used for the price variable, because of the influence of price expectations and forward buying of new crop cotton. U.S. commercial exports of cotton were correlated with the price of U.S. cotton, c.i.f. Liverpool, and the price ratio of U.S. cotton to Mexican cotton in the Liverpool market.

The results of the analysis are given in the following equation:

$$X_1 = 33.2183 - 0.2077\ X_2 - 0.2246\ X_3$$
$$(0.0624) \qquad (0.0854)$$

The two variables explained about 54 percent of the variation in U.S. commercial exports of cotton during 1948-63. The regression coefficients for all variables had the expected sign and were significant at the 5-percent level. As expected, increases in cotton prices and in the price ratio were associated with a decrease in U.S. cotton exports.

The price level of U.S. cotton in the import markets would be expected to have an effect on exports; likewise, the relationship between prices of U.S. and foreign-grown cotton in import markets would be expected to be an important factor.

A 1-cent change in the price of U.S. cotton in the Liverpool market was associated on the average with a 208,000-bale change in the opposite direction, in U.S. cotton exports. In terms of 1963 price, this would mean that a 1-cent change in price would be expected to result in about a 190,000-bale change in the opposite direction in U.S. commercial exports. The price of U.S. cotton in import markets was only one of several important factors that determined U.S. exports; it only explained about 46 percent of the variation in U.S. commercial exports.

The coefficient for the level of cotton prices was slightly smaller than the one derived indirectly in the previous section (page 35); there the impact of a change in price on both consumption and production in the FFW were combined. This difference probably resulted, in part, because the former coefficient represents more of an expected longer-term response in exports to a change in world prices. Also, the latter analysis was overly simplified and explained only about one-half of the variation in U.S. cotton exports.

A 1-percent change in the ratio of U.S. to Mexican price was associated, on the average, with a change in the opposite direction of about 225,000 bales in U.S. cotton exports. A reduction of 1 cent in the price of U.S. cotton relative to Mexican prices was found to be associated with an increase in U.S. commercial exports of about 700,000 bales. However, only about 35 percent of the variation was explained by the price ratio. Also, it is unrealistic to expect that a reduction in the price of U.S. cotton would not be met by adjustments in the price for Mexican cotton. However, this does give some indication of what can be expected when U.S. cotton is priced higher than comparable foreign-grown cotton.

Other Factors Affecting U.S. Exports of Cotton

U.S.-grown cotton generally has enjoyed a preference over foreign-grown cotton in international cotton markets. This preference reflects, in part, the trading facilities available (ample supply of all qualities, quick delivery, etc.) from U.S. exporters and the U.S. Department of Agriculture's grades and standards program for cotton. While these facilities have contributed to the demand for U.S. cotton exports, the policies of foreign governments to increase production have worked to reduce U.S. cotton exports.

U.S. Trading Practices

U.S. cotton has held a slight preference over foreign cotton because the American cotton shipper is generally considered to have more business and financial responsibility; also, because of large U.S. stocks of cotton, U.S. shippers can supply a wider range of qualities throughout the year than shippers from any other country. Many American exporters have agents in overseas markets to provide a personal business relationship between buyer and seller. Approved marketing practices

that encompass arbitration and trading rules, supported and adhered to by most U.S. shippers, facilitate trade; nevertheless, there are some trading practices that are detrimental to U.S. cotton exports. Some of these are unethical practices, such as including bales of cotton below contract specification in a shipment and occasionally refusing to pay arbitration awards for weight and quality claims.

Frequent complaints also are heard from foreign importers and mills about the appearance and condition of U.S. cotton resulting from damaged bale coverings. This condition results largely from sampling and handling after the cotton has been baled. The condition of bales for export could be improved by requiring that the covering be tucked over the bale heads and patches applied to cover holes in the bale sides where samples have been removed.

Cotton Policies of Foreign Governments

The need for U.S. cotton by FFW countries has been substantially reduced by government policies toward cotton in these countries (14). Increased production has been encouraged in the postwar period by government programs such as below-cost fertilizer distribution to producers, guaranteed cotton prices, direct producer subsidies, and credit arrangements. A few countries, including Egypt and Syria, have limited the total cultivated land area planted to cotton. India, with nearly 40 percent of the total FFW cotton acreage in 1964, provides the producers with a guaranteed price, subsidizes the cost of insect and disease control and of improved agricultural implements, and provides special credit facilities for purchasing improved seed and fertilizers. Greece provides a government subsidy for cotton producers based on planted acreage and makes government loans at favorable rates of interest for irrigation projects and machinery.

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Table 10.--Cotton: World production by regions and major
countries, 1947-64 and average 1934-38 and 1959-63

Continent and country	Year beginning August 1									
	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/
United States	11,860	14,877	16,128	10,014	15,149	15,139	16,465	13,696	14,721	13,310
Mexico	484	571	937	1,151	1,273	1,250	1,210	1,780	2,250	1,790
Central America										
El Salvador	21	22	30	27	42	47	57	90	133	137
Guatemala	5	4	5	4	11	16	27	40	44	46
Nicaragua	4	6	21	22	47	57	109	205	160	193
Others	14	19	14	13	15	15	14	17	17	20
Total	44	51	70	66	115	135	207	352	354	396
South America										
Argentina	423	453	652	471	575	567	635	524	563	481
Brazil	1,260	1,500	1,300	1,650	1,950	1,560	1,465	1,650	1,700	1,300
Columbia	25	30	40	34	47	50	92	122	106	103
Peru	282	275	350	403	429	450	475	491	492	485
Others	58	66	84	69	101	76	88	92	93	85
Total	2,048	2,324	2,426	2,627	3,102	2,703	2,755	2,879	2,954	2,454
Europe										
Greece	53	54	72	117	130	111	139	190	279	234
Spain	13	31	14	18	35	74	85	98	161	232
Others	69	68	80	115	224	147	290	288	213	142
Total	135	153	166	250	389	332	514	576	653	608
U.S.S.R.	2,600	3,400	4,000	5,200	5,600	5,800	6,100	6,500	6,150	6,850
Africa 3/										
Sudan	225	294	315	452	295	396	410	413	510	615
Congo (Leopoldville)	184	220	220	197	240	208	240	225	246	239
Tanzania	42	42	40	41	39	65	42	90	100	111
Uganda	141	327	283	289	316	267	332	250	300	310
U.A.R. (Egypt)	1,314	1,836	1,796	1,754	1,666	2,047	1,461	1,598	1,535	1,492
West Equat. Africa 4/	114	101	126	101	151	136	146	171	165	155
West Africa	14	16	22	12	33	20	21	28	20	24
Mozambique	107	136	92	140	149	194	159	144	99	162
Nigeria	35	60	60	75	110	100	140	175	150	135
Others	30	32	50	62	104	101	106	122	137	130
Total	2,206	3,064	3,004	3,123	3,103	3,534	3,057	3,216	3,262	3,373
Asia and Oceania										
Iran	80	92	96	129	124	165	240	275	275	285
Syria	25	42	61	163	225	207	220	366	400	426
Turkey	218	308	445	542	600	690	638	650	720	700
Afghanistan	10	20	20	38	53	62	60	62	57	90
Burma	35	35	35	50	75	110	105	117	85	75
China (Mainland)	2,136	2,115	2,500	3,650	4,800	5,900	5,500	4,751	6,300	6,000
India	2,625	1,960	2,350	2,720	3,110	3,005	3,750	4,436	3,835	4,170
Pakistan	925	826	1,035	1,225	1,340	1,552	1,179	1,304	1,444	1,410
Others	102	109	173	171	199	139	155	162	220	225
Total	6,156	5,507	6,715	8,688	10,526	11,830	11,847	12,123	13,336	13,381
World total	25,533	29,947	33,446	31,119	39,257	40,723	42,155	41,122	43,680	42,162
Foreign Free World	8,893	9,514	10,755	12,167	13,514	13,772	13,840	15,939	16,369	15,901
Communist countries 6/	4,780	5,556	6,563	8,938	10,594	11,812	11,850	11,487	12,590	12,951

See footnotes at end of table.

continued-

Continent and country	Year beginning August 1									
	1957	1958	1959	1960	1961	1962	1963	1964 1/	Average 1934-38	Average 1959-63
	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/
United States	10,964	11,512	14,558	14,272	14,318	14,867	15,334	15,180	12,712	14,670
Mexico	2,085	2,345	1,690	2,100	1,995	2,425	2,109	2,395	317	2,064
Central America										
El Salvador	165	182	137	184	259	315	335	350	4	246
Guatemala	64	75	68	95	145	250	300	312	2	171
Nicaragua	219	218	128	146	255	340	410	550	5	256
Others	34	35	25	39	44	49	61.	82	28	44
Total	482	510	358	464	703	954	1,106	1,294	39	717
South America										
Argentina	783	460	409	568	496	612	450	625	275	507
Brazil	1,350	1,400	1,700	1,950	2,525	2,300	2,300	2,100	1,793	2,155
Colombia	128	150	305	307	360	375	335	300	23	336
Peru	505	541	566	555	655	675	625	625	376	615
Others	99	88	70	77	87	97	111	155	63	88
Total	2,865	2,639	3,050	3,457	4,123	4,059	3,821	3,805	2,530	3,701
Europe										
Greece	290	286	262	288	448	410	430	310	70	368
Spain	165	191	295	330	490	517	445	355	10	415
Others	166	143	179	163	95	124	112	119	53	135
Total	621	620	736	781	1,033	1,051	987	784	133	918
U.S.S.R.	6,600	6,850	7,300	6,800	7,050	6,700	8,100	8,200	2,967	7,190
Africa 3/										
Sudan	215	575	585	525	975	721	452	700	245	652
Congo (Leopoldville)	205	250	275	125	75	75	60	30	153	122
Tanzania	140	143	168	157	139	175	215	245	45	171
Uganda	292	334	300	309	151	297	315	360	273	274
U.A.R. (Egypt)	1,861	2,048	2,100	2,196	1,542	2,101	2,029	2,315	1,846	1,993
West Equat. Africa 4/	185	175	130	50	45	50	45	50	34	64
West Africa	25	25	40	45	50	75	80	75	27	58
Mozambique	140	200	220	164	190	135	170	150	29	176
Nigeria	215	160	160	260	165	250	220	210	37	211
Others	140	165	158	325	242	371	409	485	48	301
Total	3,418	4,075	4,136	4,156	3,574	4,250	3,995	4,620	2,737	4,022
Asia and Oceania										
Iran	280	320	373	456	530	425	530	530	158	463
Syria	492	443	446	511	572	689	700	810	25	584
Turkey	600	800	850	775	950	1,080	1,150	1,500	240	961
Afghanistan	70	45	80	80	85	120	175	175	48	108
Burma	58	65	85	75	95	90	65	90	95	82
China (Mainland)	7,500	8,700	8,300	6,200	4,100	4,200	4,700	5,500	3,127	5,500
India	4,425	4,200	3,325	4,630	4,075	4,900	5,200	4,900 5/	5,168	4,426
Pakistan	1,405	1,265	1,355	1,398	1,505	1,690	1,940	1,747	5/	1,577
Others	240	223	231	250	318	290	250	327	216	268
Total	15,070	16,061	15,045	14,375	12,230	13,484	14,710	15,579	9,077	13,969
World total	42,105	44,612	46,873	46,405	45,026	47,790	50,162	51,857	30,528	47,251
Foreign Free World	16,923	17,447	16,597	18,979	19,473	21,903	21,930	22,869	11,687	19,776
Communist countries 6/	14,218	15,653	15,718	13,154	11,235	11,020	12,898	13,808	6,129	12,805

1/ Preliminary. 2/ 500 pound gross weight bales. 3/ Modern names and geographic regions
used. 4/ Includes Central African Republic and Chad. 5/ Includes Pakistan for 1934-38 period.
6/ Data for Communist countries for all years include U.S.S.R, Mainland China, eastern European
countries, and Cuba.

Compiled from Foreign Agricultural Service data.

Continent and country	Year beginning August 1									
	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres
United States	21,330	22,911	27,439	17,843	26,949	25,921	24,341	19,251	16,928	15,615
Mexico	927	1,050	1,446	1,880	2,183	1,937	1,860	1,820	2,700	2,095
Central America										
El Salvador	38	32	43	47	72	71	54	73	113	95
Guatemala	7	8	8	6	20	22	27	39	52	32
Nicaragua	5	8	37	41	86	64	100	214	257	182
Others	49	56	60	48	66	61	60	73	77	68
Total	99	104	148	142	244	218	241	399	499	377
South America										
Argentina	978	1,169	1,131	1,140	1,385	1,317	1,362	1,333	1,318	1,346
Brazil	4,400	4,100	4,500	5,300	5,100	4,500	4,000	4,500	5,000	4,300
Colombia	125	150	150	103	136	150	200	230	170	165
Peru	321	370	380	408	465	482	531	556	548	588
Others	154	221	241	224	255	199	218	247	241	216
Total	5,978	6,010	6,402	7,175	7,341	6,648	6,311	6,866	7,277	6,615
Europe										
Greece	105	112	141	191	213	203	220	270	410	395
Spain	69	124	90	84	110	167	218	267	406	494
Others	285	355	467	559	774	1,018	1,111	961	958	708
Total	459	591	698	834	1,097	1,388	1,549	1,498	1,774	1,597
U.S.S.R.	3,625	4,100	4,550	5,700	6,725	7,000	4,600	5,400	5,430	5,100
Africa 4/										
Sudan	363	402	430	539	571	620	652	685	598	764
Congo (Leopoldville)	754	741	750	815	850	900	900	850	850	850
Tanzania	150	175	175	200	200	207	190	250	300	300
Uganda	1,037	1,555	1,629	1,535	1,518	1,468	1,611	1,739	1,585	1,569
U.A.R. (Egypt)	1,302	1,496	1,756	2,050	2,055	2,042	1,375	1,639	1,885	1,715
West Equat. Africa 5/	600	600	600	715	750	890	900	935	925	910
West Africa	78	89	125	144	188	171	122	121	85	102
Mozambique	500	640	644	700	680	700	660	710	725	743
Nigeria	150	300	300	310	430	375	400	800	750	750
Others	163	180	271	274	451	422	487	514	644	513
Total	5,097	6,178	6,680	7,282	7,693	7,795	7,297	8,243	8,347	8,216
Asia and Oceania										
Iran	205	259	247	321	371	450	555	620	650	625
Syria	48	59	63	193	537	457	370	463	600	673
Turkey	502	734	804	1,100	1,586	1,669	1,495	1,440	1,547	1,575
Afghanistan	50	100	125	70	80	100	100	85	170	196
Burma	192	153	183	225	300	450	400	450	405	354
China (Mainland)	6,400	6,300	8,000	10,000	13,600	13,800	12,800	13,500	14,300	15,400
India	10,932	11,055	12,173	14,556	16,198	15,693	17,182	18,684	19,978	19,893
Pakistan	3,122	2,800	2,862	3,011	3,244	3,467	2,930	3,185	3,529	3,607
Others	497	415	487	585	633	582	535	580	610	696
Total	21,948	21,875	24,944	30,061	36,549	36,668	36,367	39,007	41,789	43,019
World total	59,463	62,819	72,307	70,917	88,781	87,575	82,566	82,484	84,744	82,634
Foreign Free World	27,894	29,281	31 998	36,935	40,844	39,970	39,795	43,501	47,276	45,934
Communist countries 7/	10,239	10,627	12,870	16,139	20.988	21,684	18,430	19,732	20,540	21,085

See footnotes at end of table.

Table 11.--Cotton: World acreage by regions and major countries,
1947-64 and averages 1934-38 and 1959-63, continued-

Continent and country	Year beginning August 1									
	1957	1958	1959	1960	1961	1962	1963	1964 1/	Average 1934-38	Average 1959-63
	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres
United States	13,558	11,849	15,117	15,309	15,634	15,569	14,212	14,057	28,400	15,168
Mexico	2,247	2,510	1,798	2,234	2,020	2,064	1,964	1,935	679	2,016
Central America										
El Salvador	99	132	95	126	191	220	260	300	2/8	178
Guatemala	43	68	44	64	115	165	215	225	3/3	121
Nicaragua	218	223	164	151	185	230	285	330	2/8	203
Others	82	82	80	122	117	122	133	150	148	115
Total	442	505	383	463	608	737	893	1,005	167	617
South America										
Argentina	1,585	1,225	1,139	1,033	1,345	1,284	1,304	1,350	765	1,221
Brazil	3,700	4,000	4,600	5,000	5,500	5,500	5,750	5,750	5,181	5,270
Colombia	174	235	377	359	398	449	400	375	86	397
Peru	610	571	624	618	610	680	680	650	415	642
Others	243	263	215	267	284	367	362	360	186	299
Total	6,312	6,294	6,955	7,277	8,137	8,280	8,496	8,485	6,633	7,829
Europe										
Greece	385	402	325	409	510	508	570	350	153	464
Spain	396	417	557	618	788	855	650	490	43	694
Others	503	385	410	344	299	272	263	250	130	318
Total	1,284	1,204	1,292	1,371	1,597	1,635	1,483	1,090	326	1,476
U.S.S.R.	5,170	5,310	5,320	5,415	5,760	5,900	6,100	6,100	5,008	5,699
Africa 4/										
Sudan	728	887	942	940	1,176	1,106	1,100	1,110	427	1,053
Congo (Leopoldville)	840	855	845	450	250	300	300	200	814	429
Tanzania	400	400	450	450	475	475	475	500	2/244	465
Uganda	1,617	2,014	1,565	1,516	2,068	1,858	1,986	2,150	1,460	1,799
U.A.R. (Egypt)	1,888	1,977	1,827	1,944	2,062	1,720	1,689	1,672	1,843	1,848
West Equat. Africa 5/	895	1,020	925	---	---	---	---	370	366	---
West Africa	125	135	115	190	185	185	225	175	2/198	180
Mozambique	745	773	735	763	773	750	775	775	2/202	759
Nigeria	850	800	800	800	800	800	800	800	2/188	800
Others	522	578	550	1,650	1,603	1,775	1,769	1,544	118	1,654
Total	8,610	9,439	8,754	8,703	9,392	8,969	9,119	9,296	5,860	8,987
Asia and Oceania										
Iran	625	640	740	800	985	1,000	988	940	402	902
Syria	638	644	561	525	616	747	721	708	74	634
Turkey	1,544	1,559	1,542	1,534	1,604	1,631	1,553	1,680	621	1,573
Afghanistan	175	160	160	200	190	225	300	350	188	215
Burma	295	299	328	379	468	475	500	600	461	430
China (Mainland)	14,200	14,100	14,100	13,100	10,500	9,000	10,300	11,000	7,334	11,400
India	19,996	19,926	18,804	18,971	19,074	19,385	19,600	20,100	6/24,682	19,167
Pakistan	3,641	3,305	3,370	3,242	3,488	3,435	3,670	3,660	6/	3,441
Others	636	562	583	546	655	572	564	554	556	584
Total	41,750	41,195	40,188	39,297	37,580	36,470	38,196	39,592	34,318	38,346
World total	79,373	78,306	79,807	80,069	80,728	79,624	80,463	81,560	81,588	80,138
Foreign Free World	46,052	46,761	44,952	45,893	48,534	48,880	49,571	50,133	40,761	47,566
Communist countries 7/	19,763	19,696	19,738	18,867	16,560	15,175	16,680	17,370	12,427	17,404

1/ Preliminary. 2/ 4-year average. 3/ 1 year. 4/ Modern names and geographic regions used. 5/ Includes Central African Republic and Chad; data for some years included in Others. 6/ India includes Pakistan for 1934-38 period. 7/ Data for Communist countries for all years include U.S.S.R., Mainland China, eastern European countries, and Cuba.

Compiled from Foreign Agricultural Service

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Table 12.--Cotton: World yield by regions and major countries,
1947-64 and averages 1934-38 and 1959-63

Continent and country	Year beginning August 1									
	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre
United States	267	312	282	269	270	280	325	341	417	409
Mexico	251	261	311	294	280	310	312	469	400	410
Central America										
El Salvador	265	330	335	276	280	318	507	592	565	692
Guatemala	343	240	300	320	264	349	480	492	406	690
Nicaragua	384	360	272	258	262	428	523	460	299	509
Others	127	157	108	127	113	138	112	110	110	142
Total	213	235	227	223	226	297	412	423	341	504
South America										
Argentina	208	186	277	198	199	207	224	189	205	172
Brazil	137	176	139	149	184	166	176	176	163	145
Colombia	96	96	128	158	166	160	221	255	299	300
Peru	422	357	442	474	443	448	429	424	431	396
Others	163	155	167	146	190	182	193	179	185	189
Total	164	186	182	176	203	195	210	201	195	178
Europe										
Greece	242	231	245	294	293	262	303	338	327	284
Spain	90	120	75	103	153	213	187	176	190	225
Others	116	97	95	99	139	69	125	145	107	96
Total	141	130	122	144	170	115	159	187	174	182
U.S.S.R.	344	398	422	438	400	398	637	578	544	645
Africa 4/										
Sudan	298	351	352	403	248	307	302	289	409	386
Congo (Leopoldville)	117	143	141	116	136	111	128	127	139	135
Tanzania	134	115	110	98	94	151	106	173	160	178
Uganda	65	101	83	90	100	87	99	69	91	95
U.A.R. (Egypt)	484	589	491	411	389	481	510	468	391	418
West Equat. Africa 5/	91	81	101	68	97	73	78	88	86	82
West Africa	86	86	84	40	84	56	83	111	113	113
Mozambique	103	102	69	96	105	133	116	97	66	105
Nigeria	112	96	96	116	123	128	168	105	96	86
Others	88	97	110	121	118	118	106	108	95	118
Total	208	238	216	206	194	218	201	187	188	197
Asia and Oceania										
Iran	187	171	187	193	160	176	208	213	203	219
Syria	250	342	465	405	201	217	285	379	320	304
Turkey	208	201	266	237	182	198	205	217	223	219
Afghanistan	96	96	77	261	318	298	288	350	161	220
Burma	88	110	92	107	120	117	126	125	101	102
China (Mainland)	160	161	150	175	169	205	206	169	211	187
India	115	85	93	90	92	92	105	114	92	101
Pakistan	142	142	174	195	198	215	193	196	196	188
Others	100	134	173	141	150	113	138	136	175	162
Total	135	121	129	139	138	155	156	149	153	149
World total	205	227	221	210	212	223	245	239	247	243
Foreign Free World	153	156	161	158	159	165	167	176	166	166
Communist countries 7/	224	251	245	266	242	261	309	279	294	295

See footnotes at end of table.

Table 12.—Cotton: World yield by regions and major countries, 1947-64
and averages 1934-38 and 1959-63, continued

Continent and country	Year beginning August 1									
	1957	1958	1959	1960	1961	1962	1963	1964 1/	Average 1934-38	Average 1959-63
	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre	Lb. per acre
United States	388	466	462	447	440	457	517	517	212	464
Mexico	445	448	451	451	474	564	525	594	227	491
Central America										
El Salvador	800	662	692	701	651	687	618	560 2/	263	663
Guatemala	714	529	742	713	605	727	670	666 3/	239	678
Nicaragua	482	469	375	464	662	710	691	800 2/	274	605
Others	218	194	154	155	182	193	220	343	97	184
Total	523	485	449	481	555	621	594	513	112	558
South America										
Argentina	237	180	172	264	177	229	166	222	171	199
Brazil	175	168	177	187	220	204	192	175	165	196
Colombia	353	306	388	410	434	401	402	384	135	406
Peru	397	455	435	431	515	476	441	462	432	460
Others	196	161	156	138	145	127	135	117	168	141
Total	218	201	210	228	243	235	216	215	183	227
Europe										
Greece	362	341	387	338	422	387	362	425	218	381
Spain	200	220	254	256	298	290	329	348	119	287
Others	158	183	215	227	152	218	204	171	196	204
Total	232	249	274	273	310	308	319	345	198	299
U.S.S.R.	513	619	659	603	588	545	637	645	281	606
Africa 4/										
Sudan	142	311	298	268	398	313	197	303	274	297
Congo (Leopoldville)	117	140	156	133	144	120	96	72	88	136
Tanzania	168	172	179	167	140	177	217	235 2/	94	177
Uganda	87	80	92	98	35	77	76	80	89	73
U.A.R. (Egypt)	473	497	552	542	359	586	577	665	477	518
West Equat. Africa 5/	99	82	67	---	---	---	---	65	44	---
West Africa	96	89	167	114	130	169	171	206 2/	65	155
Mozambique	90	124	144	103	118	86	105	93 2/	78	111
Nigeria	121	96	96	156	99	150	132	126 2/	85	127
Others	119	135	138	95	72	100	111	99	216	98
Total	191	207	227	229	183	226	210	239	224	215
Asia and Oceania										
Iran	215	240	242	274	258	204	257	271	205	246
Syria	370	330	382	467	446	443	436	549	165	442
Turkey	187	246	265	243	284	318	355	429	186	293
Afghanistan	192	135	240	192	215	256	280	240 2/	122	241
Burma	94	104	124	95	97	91	62	72 2/	103	92
China (Mainland)	254	296	283	227	187	224	219	240	204	232
India	106	101	85	117	103	121	127	117 6/	101	111
Pakistan	185	184	193	207	207	236	254	229	6/	220
Others	187	182	191	230	244	233	233	186	194	220
Total	173	187	180	176	156	177	185	189	126	175
World total	254	273	282	279	268	288	299	305	180	283
Foreign Free World	176	179	177	199	193	215	212	219	138	200
Communist countries 7/	345	381	382	335	326	349	371	382	237	353

1/ Preliminary.   2/ 4-year average.   3/ 3-year average.   4/ Modern names and geographic
regions used.   5/ Includes Central African Republic and Chad; data for some years included
in Others.   6/ India includes Pakistan for 1934-38 period.   7/ Data for Communist countries
for all years include U.S.S.R., Mainland China, eastern European countries, and Cuba.

Compiled from Foreign Agricultural Service data.

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Continent and country	Year beginning August 1									
	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/
United States	9,354	7,795	8,851	10,509	9,196	9,461	8,576	8,841	9,210	8,608
Canada	365	381	419	477	342	353	288	336	362	356
Mexico	344	314	309	334	314	330	329	383	443	468
Total Central America	65	53	55	62	60	55	71	67	70	81
South America										
Argentina	370	370	388	460	495	373	422	489	523	543
Brazil	836	822	822	836	822	797	896	996	1,046	1,026
Chile	49	67	83	66	66	90	90	90	95	90
Colombia	100	114	111	110	105	124	132	153	158	168
Others	149	137	120	136	131	139	153	175	170	179
Total	1,504	1,510	1,524	1,608	1,619	1,523	1,693	1,903	1,992	2,006
Western Europe										
Austria	64	80	93	95	95	77	94	107	104	108
Belgium	403	369	404	474	405	369	427	423	413	449
France	1,113	1,060	1,155	1,250	1,221	1,145	1,330	1,263	1,213	1,369
West Germany	432	583	869	1,046	961	1,069	1,217	1,246	1,313	1,425
Greece	86	84	95	114	110	106	118	116	105	120
Italy	829	951	932	983	888	860	872	801	762	879
Netherlands	221	245	279	298	266	294	321	333	336	341
Portugal	149	150	164	160	177	173	193	213	202	198
Spain	343	418	269	244	314	343	319	349	395	458
Sweden	113	116	127	129	124	119	134	135	134	139
Switzerland	140	131	139	157	164	145	163	173	167	183
United Kingdom	1,926	2,012	2,083	2,126	1,752	1,557	1,826	1,754	1,539	1,589
Yugoslavia	139	154	162	144	129	119	121	154	174	194
Others	104	88	117	127	132	134	140	138	135	155
Total	6,062	6,441	6,888	7,347	6,738	6,510	7,275	7,205	6,992	7,607
Eastern Europe										
Bulgaria	75	80	80	95	115	134	149	149	154	159
Czechoslovakia	246	299	314	304	284	269	299	329	349	368
East Germany	75	100	124	199	249	299	344	398	398	408
Hungary	124	139	159	189	224	229	234	234	199	156
Poland	336	383	408	413	413	418	423	433	438	423
Rumania	114	149	169	179	224	229	234	249	224	209
Others	0	0	1	3	10	20	18	14	18	24
Total	970	1,150	1,255	1,382	1,519	1,598	1,701	1,806	1,780	1,747
U.S.S.R.	2,888	3,087	3,336	3,934	4,182	4,431	4,680	5,079	4,979	5,377
Africa										
Republic of South Africa	22	23	25	30	35	35	40	42	47	60
U.A.R. (Egypt)	214	232	238	280	311	313	337	359	400	413
Others	66	73	77	84	90	100	107	119	112	135
Total	302	328	340	394	436	448	484	520	559	608
Asia and Oceania										
China (Mainland) 5/	3,037	2,788	2,689	3,236	4,182	4,979	5,477	5,328	5,875	6,174
China (Taiwan)	-	2	15	26	49	90	119	124	124	129
Hong Kong	1	18	75	126	161	156	203	217	222	231
India 6/	3,585	3,734	3,256	3,137	3,505	3,859	3,973	4,103	4,262	4,511
Iran	88	65	60	45	70	70	70	70	78	90
Japan 7/	589	734	1,028	1,592	1,808	2,056	2,431	2,133	2,312	2,834
South Korea	87	136	199	115	129	110	149	209	219	264
Pakistan 6/	75	90	144	149	179	229	448	657	817	856
Philippines	7	4	7	10	9	10	10	8	10	29
Turkey	184	184	204	229	274	289	358	438	463	498
Others	200	222	222	268	287	274	318	302	308	344
Total	7,853	7,977	7,899	8,933	10,653	12,122	13,556	13,589	14,690	15,960
World total	29,707	29,036	30,876	34,980	35,059	36,831	38,653	39,729	41,077	42,818
Foreign Free World	13,457	14,215	14,745	15,919	15,979	16,360	18,214	18,665	19,192	20,855
Communist countries 8/	6,896	7,026	7,280	8,552	9,884	11,010	11,863	12,223	12,675	13,355

See footnotes at end of table.   continued-

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Continent and country	Year beginning August 1									
	1957	1958	1959	1960	1961	1962	1963	1964 1/	Average 1934-38	Average 1959-63
	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/
United States	7,999	8,703	9,025	8,279	8,954	8,419	8,609	9,171	6,427	8,657
Canada	325	331	319	334	383	373	433	448	267	368
Mexico	478	478	483	498	508	508	558	598	226	511
Total Central America	88	86	104	128	144	155	160	189	14	138
South America										
Argentina	519	548	483	498	483	349	413	508	113	445
Brazil	1,046	1,145	1,180	1,245	1,295	1,245	1,245	1,195	510	1,242
Chile	80	60	82	105	110	115	119	119	14	106
Colombia	181	191	215	235	244	259	264	274	35	244
Others	178	181	209	198	202	206	231	251	47	209
Total	2,004	2,125	2,169	2,281	2,334	2,174	2,272	2,347	719	2,246
Western Europe										
Austria	119	113	119	126	127	115	117	120	178	121
Belgium	372	375	411	425	394	395	383	368	355	402
France	1,401	1,166	1,367	1,391	1,307	1,275	1,301	1,184	1,176	1,328
West Germany	1,427	1,349	1,466	1,494	1,389	1,301	1,306	1,313	3/1,187	1,391
Greece	130	128	120	137	144	154	162	176	96	·143
Italy	860	868	1,019	1,036	1,043	1,060	1,045	876	681	1,041
Netherlands	331	328	355	375	355	357	350	354	234	358
Portugal	206	209	252	302	302	319	341	368	90	303
Spain	473	473	558	578	637	548	548	498	233	574
Sweden	139	126	128	130	122	106	98	97	133	117
Switzerland	193	154	179	194	194	189	189	199	125	189
United Kingdom	1,453	1,275	1,305	1,227	1,052	1,021	1,060	1,071	2,730	1,133
Yugoslavia	194	199	219	239	249	329	329	373	89	273
Others	143	142	166	169	168	158	170	169	106	166
Total	7,441	6,905	7,664	7,823	7,483	7,327	7,399	7,166	7,413	7,539
Eastern Europe										
Bulgaria	164	189	219	214	229	239	249	254	74	230
Czechoslovakia	408	423	448	468	488	483	473	473	337	472
East Germany	423	448	458	468	478	458	468	428	4/---	466
Hungary	203	199	234	254	269	284	299	314	4/---	268
Poland	463	497	533	573	588	573	597	667	314	573
Rumania	229	234	239	259	299	309	319	324	61	285
Others	24	23	25	27	26	26	30	30	32	27
Total	1,914	2,013	2,156	2,263	2,377	2,372	2,435	2,490	5/818	2,321
U.S.S.R.	5,676	5,975	6,174	6,174	6,224	6,274	6,572	6,821	3,007	6,284
Africa										
Republic of South Africa	70	75	90	110	129	139	139	169	1	121
U.A.R. (Egypt)	445	514	517	546	594	632	607	657	73	579
Others	155	169	177	166	214	247	274	343	32	216
Total	670	758	784	822	937	1,018	1,020	1,169	106	916
Asia and Oceania										
China (Mainland) 5/	6,771	8,465	8,664	6,772	4,581	4,581	5,477	6,174	3,584	6,015
China (Taiwan)	129	144	184	209	249	249	274	283	2	233
Hong Kong	269	319	408	478	508	518	573	568	4/---	497
India 6/	4,342	4,397	4,431	4,601	4,919	4,899	5,228	5,502	3,083	4,816
Iran	100	134	179	199	249	224	179	209	78	206
Japan 7/	2,443	2,380	2,927	3,427	3,272	3,001	3,151	3,387	3,301	3,156
South Korea	239	269	299	269	249	319	329	309	225	293
Pakistan 6/	921	1,016	1,095	1,120	1,125	1,175	1,235	1,304	4/---	1,150
Philippines	45	75	124	134	179	159	159	134	2	151
Turkey	518	528	498	498	508	498	558	622	97	512
Others	380	412	487	531	589	638	741	806	114	597
Total	16,157	18,139	19,296	18,238	16,428	16,261	17,904	19,298	10,486	17,626
World total	42,752	45,513	48,174	46,840	45,772	44,881	47,362	49,697	29,483	46,606
Foreign Free World	20,323	20,290	22,065	23,238	23,518	23,113	24,139	24,894	15,533	23,215
Communist countries 8/	14,430	16,520	17,084	15,323	13,300	13,349	14,614	15,632	7,523	14,734

1/ Preliminary. 2/ Bales of 500 pound gross weight except for United States which are running bales.
3/ All Germany. 4/ Not available. 5/ Includes Manchuria. 6/ Pakistan included in India for 1934-38
period. 7/ Mill consumption only through 1934-48 period. 8/ Data for Communist countries for all years
include U.S.S.R., Mainland China, eastern European countries and Cuba.

Compiled from International Cotton Advisory Committee and Foreign Agricultural Service data.

Table 14.—Mill consumption of cotton, wool and man-made fibers: Total and percent of total by fiber, by country and regions, 1949-63

Calendar Year	Cotton	Wool	Man-made		Total	Cotton	Wool	Man-made		Total
			Rayon	Non-cellulosic				Rayon	Non-cellulosic	
	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Percent	Percent	Percent	Percent	Percent

United States

1949	3,763.3	511.0	993.3	92.7	5,360.3	70.2	9.5	18.6	1.7	100.0
1950	4,612.7	647.2	1,351.8	140.5	6,752.2	68.3	9.6	20.0	2.1	100.0
1951	4,814.9	495.2	1,276.7	195.5	6,782.3	71.0	7.3	18.8	2.9	100.0
1952	4,429.3	429.2	1,189.4	251.3	6,299.2	70.2	6.8	19.0	4.0	100.0
1953	4,405.2	453.0·	1,252.0	288.8	6,399.0	68.8	7.2	19.5	4.5	100.0
1954	4,076.3	370.4	1,129.6	336.2	5,912.5	68.9	6.3	19.1	5.7	100.0
1955	4,333.6	398.6	1,414.7	440.9	6,587.8	65.8	6.0	21.5	6.7	100.0
1956	4,298.1	420.2	1,216.5	476.2	6,411.0	67.0	6.6	19.0	7.4	100.0
1957	4,008.6	354.9	1,191.1	601.9	6,156.5	65.0	5.8	19.3	9.9	100.0
1958	3,845.9	327.6	1,095.0	569.2	5,837.7	65.9	5.6	18.8	9.7	100.0
1959	4,305.4	306.0	1,257.1	752.9	6,621.4	65.0	4.6	19.0	11.4	100.0
1960	4,166.7	399.9	1,048.3	793.9	6,408.8	65.0	6.2	16.4	12.4	100.0
1961	4,062.6	378.1	1,078.0	841.1	6,359.8	63.9	5.9	17.0	13.2	100.0
1962	4,168.5	379.0	1,205.0	1,112.7	6,865.2	60.7	5.5	17.6	16.2	100.0
1963 1/	4,020.1	394.0	1,337.5	1,293.9	7,045.5	57.1	5.6	18.9	18.4	100.0

Belgium

1949	193.6	70.7	23.4	---	287.7	67.3	24.6	8.1	---	100.0
1950	192.2	79.8	30.6	1.0	303.6	63.3	26.3	10.1	.3	100.0
1951	224.2	61.2	38.2	1.9	325.5	68.9	18.8	11.7	.6	100.0
1952	173.5	57.1	18.1	2.2	250.9	69.2	22.8	7.2	.8	100.0
1953	190.3	69.9	27.1	3.7	291.0	65.4	24.0	9.4	1.2	100.0
1954	210.8	63.3	37.0	4.2	315.3	66.9	20.0	11.8	1.3	100.0
1955	196.4	64.8	36.4	4.6	302.2	65.1	21.4	12.0	1.5	100.0
1956	202.2	78.0	39.0	6.2	325.4	62.1	24.0	12.0	1.9	100.0
1957	210.8	79.8	50.0	7.3	347.9	60.6	22.9	14.3	2.2	100.0
1958	164.5	70.3	32.0	6.2	273.0	60.2	25.8	11.8	2.2	100.0
1959	190.7	80.0	43.7	9.0	323.4	59.0	24.7	13.5	2.8	100.0
1960	202.8	88.0	51.1	14.3	356.2	56.9	24.7	14.4	4.0	100.0
1961	201.1	84.4	61.7	20.1	367.3	54.7	23.0	16.8	5.5	100.0
1962	185.6	102.1	74.1	27.1	388.9	47.7	26.2	19.1	7.0	100.0
1963 1/	184.5	97.0	84.2	38.4	404.1	45.7	24.0	20.9	9.4	100.0

France

1949	508.1	262.4	148.7	1.4	920.6	55.2	28.5	16.1	.2	100.0
1950	558.8	254.3	133.8	2.4	949.3	58.9	26.8	14.1	.2	100.0
1951	590.8	197.4	187.4	4.8	980.4	60.3	20.1	19.1	.5	100.0
1952	548.3	213.8	140.9	6.6	909.6	60.3	23.5	15.5	.7	100.0
1953	582.2	250.2	177.0	12.1	1,021.5	57.0	24.5	17.3	1.2	100.0
1954	649.0	256.4	179.0	14.1	1,098.5	59.1	23.3	16.3	1.3	100.0
1955	570.3	245.6	187.8	21.8	1,025.5	55.6	24.0	18.3	2.1	100.0
1956	602.3	276.2	196.0	32.6	1,107.1	54.4	24.9	17.7	3.0	100.0
1957	667.3	310.4	230.6	40.1	1,248.4	53.4	24.9	18.5	3.2	100.0
1958	630.5	266.1	221.6	45.4	1,163.6	54.2	22.9	19.0	3.9	100.0
1959	589.3	284.0	192.7	65.7	1,131.7	52.1	25.1	17.0	5.8	100.0
1960	663.4	301.6	229.1	102.5	1,296.6	51.2	23.3	17.6	7.9	100.0
1961	661.8	301.1	231.9	104.7	1,299.5	50.9	23.2	17.8	8.1	100.0
1962	614.0	290.8	236.6	134.9	1,276.3	48.1	22.8	18.5	10.6	100.0
1963 1/	616.6	296.3	255.1	173.7	1,341.7	46.0	22.1	19.0	12.9	100.0

Federal Republic of Germany

1949	358.5	90.8	296.4	---	745.7	48.1	12.2	39.7	---	100.0
1950	452.2	127.6	340.8	1.4	922.0	49.0	13.8	37.0	.2	100.0
1951	511.5	117.1	365.7	4.8	999.1	51.2	11.7	36.6	.5	100.0
1952	468.5	131.6	297.6	6.4	904.1	51.8	14.6	32.9	.7	100.0
1953	548.7	153.7	342.2	7.7	1,052.3	52.2	14.6	32.5	.7	100.0
1954	596.1	151.7	370.4	13.0	1,131.2	52.7	13.4	32.7	1.2	100.0
1955	599.9	180.1	393.7	23.6	1,197.3	50.1	15.0	32.9	2.0	100.0
1956	649.0	191.4	384.3	28.7	1,253.4	51.8	15.3	30.6	2.3	100.0
1957	696.9	192.2	388.5	37.0	1,314.6	53.0	14.6	29.6	2.8	100.0
1958	665.3	144.8	343.3	46.1	1,199.5	55.5	12.1	28.6	3.8	100.0
1959	669.8	149.9	376.3	78.0	1,274.0	52.6	11.8	29.5	6.1	100.0
1960	713.6	151.5	398.4	108.5	1,372.0	52.0	11.0	29.0	7.9	100.0
1961	689.6	149.7	399.0	129.2	1,367.5	50.4	11.0	29.2	9.4	100.0
1962	649.0	147.0	398.6	185.4	1,380.0	47.0	10.7	28.9	13.4	100.0
1963 1/	618.6	153.4	416.9	204.6	1,393.5	44.4	11.0	29.9	14.7	100.0

continued-

Calendar Year	Cotton	Wool	Man-made		Total	Cotton	Wool	Man-made		Total
			Rayon	Non-:cellulosic :				Rayon	Non-:cellulosic :	
	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Percent	Percent	Percent	Percent	Percent
Italy										
1949	449.8	119.0	140.5	0.5	709.8	63.3	16.8	19.8	.1	100.0
1950	449.8	126.2	146.3	1.4	723.7	62.2	17.4	20.2	.2	100.0
1951	474.2	97.0	204.1	4.8	780.1	60.8	12.4	26.2	.6	100.0
1952	409.6	125.0	121.7	4.6	660.9	62.0	18.9	18.4	.7	100.0
1953	410.5	131.6	137.6	7.9	687.6	59.7	19.1	20.0	1.2	100.0
1954	414.9	118.6	175.7	16.8	726.0	57.2	16.3	24.2	2.3	100.0
1955	361.3	113.3	142.6	18.5	635.7	56.8	17.8	22.5	2.9	100.0
1956	385.2	126.8	188.3	24.5	725.8	53.2	17.5	25.9	3.4	100.0
1957	430.8	160.9	205.0	33.5	830.2	51.9	19.4	24.7	4.0	100.0
1958	405.9	156.1	206.4	38.1	806.5	50.3	19.4	25.6	4.7	100.0
1959	443.6	166.2	223.1	45.4	878.3	50.5	18.9	25.4	5.2	100.0
1960	500.4	198.0	233.0	57.1	988.5	50.6	20.0	23.6	5.8	100.0
1961	496.0	187.0	248.9	65.9	997.8	49.7	18.7	24.9	6.6	100.0
1962	508.4	205.0	305.1	91.0	1,109.6	45.8	18.5	27.5	8.2	100.0
1963 1/	502.6	196.2	321.2	112.9	1,132.9	44.4	17.3	28.3	10.0	100.0
United Kingdom										
1949	972.7	491.9	258.1	4.3	1,727.0	56.3	28.5	15.0	.2	100.0
1950	1,014.8	518.2	320.3	8.6	1,861.9	54.5	27.8	17.2	.5	100.0
1951	1,027.7	397.2	352.3	11.5	1,788.7	57.5	22.2	19.7	.6	100.0
1952	694.4	385.8	231.5	15.4	1,327.1	52.3	29.0	17.5	1.2	100.0
1953	814.6	496.0	359.3	17.6	1,687.5	48.3	29.4	21.3	1.0	100.0
1954	883.4	471.6	377.0	24.3	1,756.3	50.3	26.8	21.4	1.5	100.0
1955	774.3	486.3	357.1	37.5	1,655.2	46.8	29.4	21.6	2.2	100.0
1956	733.2	492.1	374.8	48.5	1,648.6	44.5	29.8	22.7	3.0	100.0
1957	759.9	500.2	377.0	72.8	1,709.9	44.4	29.2	22.1	4.3	100.0
1958	631.8	460.1	304.2	68.3	1,464.4	43.1	31.4	20.8	4.7	100.0
1959	639.1	509.3	352.7	86.9	1,588.0	40.2	32.1	22.2	5.5	100.0
1960	613.8	481.3	383.6	143.3	1,622.0	37.8	29.7	23.7	8.8	100.0
1961	551.2	472.0	463.8	140.2	1,627.2	33.9	29.0	28.5	8.6	100.0
1962	489.6	448.4	510.1	160.5	1,608.6	30.4	27.9	31.7	10.0	100.0
1963 1/	503.1	457.9	593.9	204.6	1,759.5	28.6	26.0	33.8	11.6	100.0
India										
1949	1,689.7	20.1	54.5	---	1,764.3	95.8	1.1	3.1	---	100.0
1950	1,474.6	20.1	30.6	---	1,525.3	96.7	1.3	2.0	---	100.0
1951	1,613.2	20.1	77.9	---	1,711.2	94.3	1.2	4.5	---	100.0
1952	1,775.8	19.8	52.0	---	1,847.6	96.1	1.1	2.8	---	100.0
1953	1,851.8	20.9	54.2	---	1,936.9	96.1	1.1	2.8	---	100.0
1954	1,938.3	20.9	84.4	---	2,043.6	94.9	1.0	4.1	---	100.0
1955	2,019.6	22.0	77.4	---	2,119.0	95.3	1.0	3.7	---	100.0
1956	2,062.6	22.0	121.9	0.2	2,204.6	93.5	1.0	5.5	---	100.0
1957	2,170.2	24.3	117.7	1.5	2,313.7	93.8	1.0	5.1	.1	100.0
1958	2,069.7	23.1	98.3	5.7	2,196.8	94.3	1.1	4.5	.1	100.0
1959	2,122.4	10.6	125.7	9.3	2,268.0	93.6	.4	5.6	.4	100.0
1960	2,125.7	11.9	136.0	10.1	2,283.7	93.1	.5	6.0	.4	100.0
1961	2,287.9	10.6	149.0	4.6	2,452.1	93.3	.4	6.0	.2	100.0
1962	2,314.2	13.4	160.3	11.7	2,499.6	92.6	.5	6.4	.5	100.0
1963 1/	2,205.0	15.0	151.0	20.5	2,391.5	92.2	.6	6.3	.9	100.0
Japan										
1949	403.9	12.9	109.0	---	525.8	76.8	2.5	20.7	---	100.0
1950	602.8	42.1	238.5	1.0	884.4	68.3	4.7	27.0	---	100.0
1951	834.6	63.6	329.3	7.2	1,234.7	67.6	5.1	26.7	.6	100.0
1952	905.4	99.2	388.0	8.2	1,400.8	64.6	7.1	27.7	.6	100.0
1953	1,075.0	125.2	504.0	14.3	1,718.5	62.6	7.3	29.3	.8	100.0
1954	1,107.2	110.0	614.0	21.4	1,852.6	59.8	5.9	33.2	1.1	100.0
1955	998.9	126.5	709.9	34.6	1,869.9	53.5	6.8	37.9	1.8	100.0
1956	1,248.0	170.6	891.3	63.7	2,373.6	52.6	7.2	37.5	2.7	100.0
1957	1,338.4	188.3	923.9	92.6	2,543.2	52.6	7.4	36.4	3.6	100.0
1958	1,103.2	161.4	669.1	99.6	2,033.3	54.3	7.9	32.9	4.9	100.0
1959	1,250.9	239.0	797.8	172.8	2,460.5	50.8	9.7	32.4	7.0	100.0
1960	1,741.6	281.3	836.4	251.5	2,847.4	51.9	9.9	29.4	8.8	100.0
1961	1,741.6	325.2	845.7	318.3	3,230.8	53.9	10.1	26.1	9.9	100.0
1962	1,443.4	297.4	788.6	381.8	2,911.2	49.6	10.2	27.1	13.1	100.0
1963 1/	1,469.8	302.3	832.9	497.8	3,102.8	47.4	9.7	26.9	16.0	100.0

Calendar year	Cotton	Wool	Man-made Rayon	Man-made Non-cellulosic	Total	Cotton	Wool	Man-made Rayon	Man-made Non-cellulosic	Total
	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Percent	Percent	Percent	Percent	Percent
U.A.R. (Egypt)										
1949	113.3	4.8	15.8	---	133.9	84.6	3.6	11.8	---	100.0
1950	118.5	3.8	25.8	---	148.1	80.0	2.6	17.4	---	100.0
1951	144.4	3.8	21.5	---	169.7	85.1	2.2	12.7	---	100.0
1952	148.6	4.4	14.6	---	167.6	88.7	2.6	8.7	---	100.0
1953	147.7	3.3	17.4	---	168.4	88.7	2.0	10.3	---	100.0
1954	171.5	3.7	19.4	---	194.6	88.1	1.9	10.0	---	100.0
1955	184.5	2.9	22.3	---	209.7	88.0	1.4	10.6	---	100.0
1956	194.4	2.9	23.6	---	220.9	88.0	1.3	10.7	---	100.0
1957	203.7	3.3	21.6		228.6	89.1	1.4	9.5		100.0
1958	238.1	3.7	22.3	0.2	264.3	90.1	1.4	8.4	.1	100.0
1959	235.7	3.7	25.4	0.4	265.2	88.9	1.4	9.6	.1	100.0
1960	253.7	3.7	35.7	0.4	293.7	86.4	1.3	12.2	.1	100.0
1961	270.9	3.7	25.1	0.4	300.3	90.2	1.2	8.4	.2	100.0
1962	281.1	3.7	22.3	0.7	307.8	91.3	1.2	7.3	.2	100.0
1963 1/	299.6	3.8	18.7	0.9	323.0	92.7	1.2	5.8	.3	100.0
World total										
1949	14,053.2	2,422.0	2,745.6	111.9	19,332.7	72.7	12.5	14.2	.6	100.0
1950	15,582.8	2,641.0	3,542.9	175.9	21,942.6	71.0	12.0	16.2	.8	100.0
1951	17,088.5	2,298.2	3,991.8	261.9	23,640.4	72.3	9.7	16.9	1.1	100.0
1952	16,910.4	2,398.6	3,536.2	332.7	23,177.9	73.0	10.3	15.3	1.4	100.0
1953	18,123.4	2,689.6	4,138.0	405.4	25,356.4	71.5	10.6	16.3	1.6	100.0
1954	18,814.5	2,605.8	4,490.8	495.4	26,406.5	71.2	9.9	17.0	1.9	100.0
1955	19,240.9	2,702.8	5,031.3	582.0	27,557.0	69.8	9.8	18.3	2.1	100.0
1956	20,020.2	2,914.5	5,259.3	785.9	28,979.9	69.1	10.1	18.1	2.7	100.0
1957	20,714.9	2,998.3	5,456.8	1,029.1	30,199.1	68.6	9.9	18.1	3.4	100.0
1958	20,905.6	2,813.1	5,027.4	1,052.9	29,799.0	70.2	9.4	16.9	3.5	100.0
1959	22,376.7	3,187.9	5,557.4	1,453.1	32,574.9	68.7	9.8	17.0	4.5	100.0
1960	23,049.8	3,296.1	5,719.8	1,562.8	33,628.5	68.5	9.8	17.0	4.7	100.0
1961	23,196.1	3,317.9	5,909.9	1,840.8	34,264.7	67.7	9.7	17.2	5.4	100.0
1962	22,096.5	3,310.0	6,300.3	2,383.4	34,090.2	64.8	9.7	18.5	7.0	100.0
1963 1/	22,592.3	3,341.1	6,749.4	2,935.4	35,618.2	63.4	9.4	18.9	8.3	100.0
Communist countries										
1949	3,441.6	286.8	277.2	2.4	4,008.0	85.8	7.2	6.9	.1	100.0
1950	3,728.4	286.8	358.5	4.8	4,378.5	85.2	6.6	8.1	.1	100.0
1951	4,373.7	382.4	406.3	8.6	5,171.0	84.6	7.4	7.8	.2	100.0
1952	4,960.4	385.8	537.9	15.4	5,899.5	84.1	6.5	9.1	.3	100.0
1953	5,457.5	429.9	634.9	19.8	6,541.0	83.4	6.6	9.7	.3	100.0
1954	5,765.0	498.2	696.7	24.3	6,984.2	82.6	7.1	10.0	.3	100.0
1955	5,952.4	507.1	724.7	30.9	7,215.1	82.5	7.0	10.1	.4	100.0
1956	6,205.9	560.0	773.4	39.7	7,579.0	81.9	7.4	10.2	.5	100.0
1957	6,613.8	615.1	842.2	50.7	8,121.8	81.4	7.6	10.4	.6	100.0
1958	7,330.3	659.2	913.4	59.5	8,962.4	81.8	7.3	10.2	.7	100.0
1959	8,024.7	716.5	961.9	70.5	9,773.6	82.1	7.3	9.9	.7	100.0
1960	8,035.8	800.0	1,086.9	89.5	10,012.2	80.3	8.0	10.8	.9	100.0
1961	7,693.0	784.0	1,192.2	117.1	9,786.3	78.6	8.0	12.2	1.2	100.0
1962	6,780.5	791.0	1,271.6	144.6	8,987.7	75.4	8.8	14.2	1.6	100.0
1963 1/	7,109.2	800.0	1,342.4	175.9	9,427.5	75.4	8.5	14.2	1.9	100.0
Foreign Free World countries										
1949	6,848.3	1,624.2	1,475.1	16.7	9,964.3	68.7	16.3	14.8	.2	100.0
1950	7,241.7	1,706.9	1,832.7	29.2	10,810.5	67.0	15.8	16.9	.3	100.0
1951	7,899.9	1,420.6	2,308.7	57.8	11,687.0	67.6	12.2	19.7	.5	100.0
1952	7,520.8	1,583.6	1,808.8	65.9	10,979.1	68.5	14.4	16.5	.6	100.0
1953	8,261.7	1,806.7	2,251.1	96.8	12,416.3	66.5	14.6	18.1	.8	100.0
1954	8,973.2	1,737.2	2,664.5	134.9	13,509.8	66.4	12.9	19.7	1.0	100.0
1955	8,954.9	1,797.2	2,892.0	110.2	13,754.3	65.1	13.1	21.0	.8	100.0
1956	9,516.2	1,934.3	3,269.4	270.1	14,990.0	63.5	12.9	21.8	1.8	100.0
1957	10,092.4	2,028.2	3,423.5	376.5	15,920.6	63.4	12.7	21.5	2.4	100.0
1958	9,729.3	1,826.3	3,019.0	424.2	14,998.8	64.9	12.2	20.1	2.8	100.0
1959	10,046.6	2,165.4	3,338.4	629.6	16,180.0	62.1	13.4	20.6	3.9	100.0
1960	10,847.3	2,096.1	3,584.7	679.5	17,207.6	63.0	12.2	20.8	4.0	100.0
1961	11,440.6	2,155.9	3,639.6	882.7	18,118.8	63.1	11.9	20.1	4.9	100.0
1962	11,147.6	2,140.0	3,823.7	1,126.1	18,237.4	61.1	11.7	21.0	6.2	100.0
1963 1/	11,463.0	2,147.1	4,069.5	1,465.6	19,145.2	59.9	11.2	21.2	7.7	100.0

1/ Preliminary.
2/ Compiled from Cotton - World Statistics, Quarterly Bulletin of the International Cotton Advisory
Committee, October 1964 and previous issues.

Table 15.--Man-made fibers: Production and cotton equivalent, United States

Year		Rayon and acetate		Non-cellulosic fibers		Total	
		Production	Cotton equivalent	Production 1/	Cotton equivalent	Production	Cotton equivalent
	:	Million pounds	1,000 bales 2/	Million pounds	1,000 bales 2/	Million pounds	1,000 bales 2/

UNITED STATES

Year		Production	Cotton equivalent	Production	Cotton equivalent	Production	Cotton equivalent
1940	:	471.2	1,414	4.6	16	475.8	1,430
1941	:	573.2	1,702	11.9	42	585.1	1,744
1942	:	632.6	1,866	24.5	86	657.1	1,952
1943	:	663.1	1,958	39.2	138	702.3	2,096
1944	:	723.9	2,154	48.0	169	771.9	2,323
1945	:	792.1	2,381	50.1	176	842.2	2,557
1946	:	853.9	2,573	54.5	189	908.4	2,762
1947	:	975.1	2,912	51.4	184	1,026.5	3,096
1948	:	1,124.3	3,351	74.5	265	1,198.8	3,616
1949	:	995.7	3,013	95.8	339	1.091.5	3,352
1950	:	1,259.4	3,752	145.9	516	1,405.3	4,268
1951	:	1,294.2	3,840	205.1	724	1,499.3	4,564
1952	:	1,135.8	3,380	255.7	904	1,391.5	4,283
1953	:	1,196.9	3,576	297.0	1,072	1,493.9	4,648
1954	:	1,085.7	3,184	343.8	1,256	1,429.5	4,440
1955	:	1,260.7	3,808	455.1	1,664	1,715.8	5,472
1956	:	1,147.9	3,448	496.8	1,826	1,644.7	5,274
1957	:	1,139.4	3,406	626.2	2,315	1,765.6	5,721
1958	:	1,034.9	3,074	594.3	2,223	1,629.2	5,298
1959	:	1,166.8	3,505	792.7	2,956	1,959.5	6,461
1960	:	1,028.5	3,085	854.2	3,202	1,882.7	6,286
1961	:	1,095.2	3,210	900.2	3,384	1,995.4	6,593
1962	:	1,272.1	3,700	1,163.2	4,346	2,435.3	8,046
1963	:	1,348.8	3,846	1,347.9	4,972	2,696.7	8,818
1964	:	1,431.8	4,101	1,647.2	6,033	3,079.0	10,135

FOREIGN COUNTRIES

Year		Production	Cotton equivalent	Production	Cotton equivalent	Production	Cotton equivalent
1946	:	875.3	2,382	2.4	9	877.7	2,391
1947	:	1,116.2	3,062	5.2	18	1,121.4	3,080
1948	:	1,416.9	3,857	9.1	31	1,426.0	3,888
1949	:	1,751.1	4,745	16.9	57	1,768.0	4,802
1950	:	2,293.4	6,109	31.5	106	2,324.9	6,215
1951	:	2,715.6	7,249	59.4	193	2,775.0	7,442
1952	:	2,398.5	6,384	77.6	254	2,476.1	6,638
1953	:	2,957.0	7,841	107.6	352	3,064.6	8,194
1954	:	3,383.6	8,972	150.9	500	3,534.5	9,472
1955	:	3,762.6	9,999	214.9	719	3,977.5	10,718
1956	:	4,104.3	10,870	289.3	962	4,393.6	11,832
1957	:	4,308.3	11,486	402.8	1,334	4,711.1	12,821
1958	:	3,978.7	10,652	456.8	1,530	4,435.5	12,182
1959	:	4,370.2	11,754	655.9	2,172	5,026.1	13,926
1960	:	4,702.1	12,701	914.7	3,012	5,617.4	15,713
1961	:	4,818.5	12,979	1,124.0	3,700	5,942.5	16,678
1962	:	5,025.7	13,537	1,460.6	4,806	6,486.3	18,344
1963	:	5,379.2	14,428	1,845.4	6,085	7,224.6	20,513
1964	:	5,823.8	15,604	2,405.8	7,936	8,229.6	23,540

WORLD

Year		Production	Cotton equivalent	Production	Cotton equivalent	Production	Cotton equivalent
1946	:	1,729.2	4,955	56.9	198	1,786.1	5,153
1947	:	2,091.3	5,973	56.6	201	2,147.9	6,174
1948	:	2,541.2	7,208	83.6	296	2,624.8	7,504
1949	:	2,746.8	7,758	112.7	396	2,859.5	8,154
1950	:	3,552.8	9,862	177.4	622	3,730.2	10,484
1951	:	4,009.8	11,089	264.5	918	4,274.3	12,006
1952	:	3,534.3	9,763	333.3	1,157	3,867.6	10,920
1953	:	4,153.9	11,418	404.6	1,424	4,558.5	12,841
1954	:	4,469.3	12,156	494.7	1,756	4,964.0	13,912
1955	:	5,023.3	13,807	670.0	2,383	5,693.3	16,190
1956	:	5,252.2	14,318	786.1	2,788	6,038.3	17,106
1957	:	5,447.7	14,892	1,029.0	3,649	6,476.7	18,541
1958	:	5,013.6	13,726	1,051.1	3,753	6,064.7	17,479
1959	:	5,537.0	15,259	1,448.6	5,129	6,985.6	20,388
1960	:	5,731.2	15,785	1,768.9	6,214	7,500.1	21,999
1961	:	5,913.7	16,188	2,024.2	7,083	7,937.9	23,271
1962	:	6,297.8	17,237	2,623.8	9,154	8,921.6	26,390
1963	:	6,728.0	18,274	3,193.3	11,058	9,921.3	29,332
1964	:	7,255.6	19,705	4,053.0	13,969	11,308.6	33,674

1/ Does not include glass fiber, prior to 1950.
2/ 500 pound gross weight bales.

Table 16.--Cotton: World stocks by regions and major countries,
August 1, 1947-64 and average 1959-63

Continent and country	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/
United States	2,530	3,080	5,287	6,846	2,278	2,789	5,605	9,728	11,205	14,529
Canada	90	72	51	50	62	52	48	24	38	53
Mexico	279	120	170	164	265	263	222	172	300	85
Central America										
El Salvador	3	4	1	7	1	22	12	13	55	35
Guatemala	3	2	3	4	3	5	9	11	9	6
Nicaragua	0	2	2	9	3	29	10	8	106	23
Others	24	17	7	10	7	7	7	9	8	9
Total	30	25	13	30	14	63	38	41	178	73
South America										
Argentina	428	465	501	693	448	551	482	547	480	520
Brazil	1,836	1,188	838	670	753	1,513	2,063	1,225	825	650
Colombia	60	49	59	67	47	41	57	55	46	40
Paraguay	21	19	24	34	25	32	30	20	20	15
Peru	163	122	122	148	163	230	220	255	335	255
Others	28	27	36	42	52	53	53	55	53	60
Total	2,536	1,870	1,580	1,654	1,488	2,420	2,905	2,157	1,759	1,540
Western Europe										
Belgium	150	128	75	117	114	118	105	126	130	102
France	586	292	306	495	313	263	339	330	390	365
Germany, Fed. Rep. of	185	135	116	282	212	156	219	328	330	290
Greece	44	20	12	32	43	42	22	16	31	26
Italy	556	359	317	395	425	415	350	260	190	195
Netherlands	120	90	65	98	72	51	53	70	81	78
Spain	86	51	96	87	83	116	119	172	200	140
United Kingdom	2,030	1,393	1,619	1,403	1,228	1,282	1,016	873	546	434
Others	281	278	268	256	258	303	329	337	352	352
Total	4,038	2,746	2,874	3,165	2,748	2,746	2,552	2,512	2,250	1,982
U.S.S.R and Eastern Europe	1,430	1,034	910	958	1,274	1,644	1,731	1,721	1,686	1,489
Africa										
Congo (Leopoldville)	137	107	121	116	81	112	85	102	120	115
U.A.R. (Egypt)	1,354	890	800	700	620	1,025	985	595	720	390
Mozambique	56	28	61	33	59	67	111	85	80	44
Nigeria	30	22	31	19	7	60	48	38	60	30
Sudan	126	106	85	85	176	83	218	213	325	270
Others	116	65	228	166	158	255	149	220	211	216
Total	1,819	1,218	1,326	1,119	1,101	1,602	1,596	1,253	1,516	1,065
Asia and Oceania										
China (Mainland)	1,230	1,015	415	200	250	550	1,000	800	450	1,000
Hong Kong	0	0	0	28	42	25	26	43	44	50
India	3,630	2,490	1,280	1,100	1,304	1,775	1,155	1,374	2,400	1,935
Iran	24	13	24	32	10	30	10	20	18	32
Japan	181	235	425	316	680	520	520	522	425	490
Pakistan	250	178	190	251	140	400	450	300	310	225
Syria	4	3	5	5	23	35	17	12	10	7
Turkey	50	53	32	43	13	88	78	34	65	180
Others	113	110	84	84	88	127	165	165	201	159
Total	5,482	4,097	2,455	2,059	2,550	3,550	3,421	3,270	3,923	4,078
Afloat	300	300	300	800	300	300	300	400	300	300
World total	18,534	14,562	14,966	16,845	12,080	15,429	18,418	21,278	23,155	25,194
Foreign Free World	13,029	9,119	8,048	8,034	7,973	10,142	9,777	8,622	9,509	7,864
Communist countries 3/	2,675	2,063	1,331	1,165	1,529	2,198	2,736	2,528	2,141	2,501

See footnotes at end of table

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Continent and country	1957	1958	1959	1960	1961	1962	1963	1964 1/	Average 1959-63
	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/
United States	11,323	8,737	8,885	7,559	7,228	7,831	11,216	12,378	8,544
Canada	75	104	62	85	39	96	61	103	69
Mexico	100	300	350	250	225	225	240	343	258
Central America									
El Salvador	70	105	25	26	45	65	55	50	43
Guatemala	10	14	10	10	9	14	13	14	11
Nicaragua	60	125	2	8	8	12	54	52	17
Others	10	19	11	11	30	26	21	22	20
Total	150	263	48	55	92	117	143	138	91
South America									
Argentina	420	680	550	480	510	410	474	395	485
Brazil	525	600	600	660	660	975	875	850	754
Colombia	22	46	40	103	66	46	48	89	61
Paraguay	13	13	8	8	8	9	12	5	9
Peru	270	300	250	320	315	300	295	315	296
Others	33	39	46	35	35	37	37	45	38
Total	1,283	1,678	1,494	1,606	1,594	1,777	1,741	1,699	1,643
Western Europe									
Belgium	145	131	120	173	173	162	120	90	150
France	560	340	255	385	395	295	280	304	322
Germany, Fed. Rep. of	445	460	340	560	465	335	295	363	399
Greece	10	66	29	24	32	37	62	74	37
Italy	310	300	230	400	390	375	393	454	358
Netherlands	116	92	82	115	120	100	90	125	101
Spain	125	85	252	74	160	370	240	158	219
United Kingdom	590	560	401	467	356	275	263	421	352
Others	416	397	388	371	405	419	438	435	404
Total	2,717	2,431	2,097	2,569	2,496	2,368	2,181	2,424	2,342
U.S.S.R.and Eastern Europe	1,851	1,990	2,075	2,303	1,888	1,723	1,367	1,999	1,866
Africa									
Congo (Leopoldville)	105	110	115	95	65	20	23	11	64
U.A.R. (Egypt)	519	660	760	452	475	250	350	335	457
Mozambique	105	80	150	170	120	150	96	---	137
Nigeria	30	110	45	30	79	40	102	95	59
Sudan	550	370	270	260	340	660	546	240	415
Others	223	226	159	177	268	170	279	448	214
Total	1,532	1,556	1,499	1,184	1,347	1,290	1,396	1,129	1,346
Asia and Oceania									
China (Mainland)	1,000	1,250	1,300	1,200	850	550	600	560	900
Hong Kong	65	60	75	125	145	90	119	160	111
India	1,825	2,025	1,900	1,340	2,040	1,600	2,050	2,350	1,786
Iran	47	29	44	32	43	55	30	24	41
Japan	585	536	680	1,025	1,132	705	760	767	860
Pakistan	295	400	275	200	240	360	200	200	255
Syria	15	25	45	40	45	70	68	62	54
Turkey	175	140	125	90	85	85	95	128	96
Others	242	223	211	320	294	359	352	383	309
Total	4,249	4,688	4,655	4,372	4,874	3,874	4,274	4,634	4,412
Afloat	500	500	300	300	300	300	200	400	280
World total	23,780	22,247	21,465	20,283	20,083	19,601	22,819	25,247	20,851
Foreign Free World	9,090	9,747	8,889	8,905	9,781	9,166	9,436	9,895	9,236
Communist countries 3/	2,867	3,263	3,391	3,519	2,774	2,304	1,967	2,574	2,791

1/ Preliminary. 2/ 500 pound gross weight bales. 3/ Data for Communist countries for all years include U.S.S.R., Mainland China, eastern European countries, and Cuba.

Compiled from Foreign Agricultural Service data.

Table 17.--Cotton: World exports by country of origin, 1947-64, and averages 1934-38 and 1959-63

Continent and country	Year beginning August 1									
	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/
United States	2,025	4,961	6,004	4,280	5,711	3,181	3,914	3,585	2,320	7,917
Mexico	359	232	655	742	972	992	951	1,253	2,027	1,310
Central America										
El Salvador	10	15	14	22	10	46	42	35	140	96
Guatemala	0	0	0	0	0	0	13	30	35	30
Nicaragua	0	3	10	24	18	69	102	100	239	150
Others	19	11	14	0	7	19	9	12	11	14
Total	29	29	38	46	35	134	166	177	425	290
South America										
Argentina	0	28	49	274	5	261	157	104	2	51
Brazil	1,049	955	598	697	347	145	1,400	1,036	810	380
Colombia	0	0	0	0	0	0	0	0	0	0
Paraguay	33	27	48	55	49	43	57	45	45	35
Peru	263	216	264	321	307	398	361	330	487	390
Others	0	0	0	2	0	5	4	0	0	0
Total	1,345	1,226	959	1,349	708	852	1,979	1,515	1,344	856
Western Europe										
Greece	0	0	0	7	21	26	29	68	180	148
Spain	0	0	0	0	0	0	0	0	0	0
Others	---	---	---	---	---	---	---	---	---	---
Total	0	0	0	7	21	26	29	68	180	148
U.S.S.R. and Eastern Europe	675	600	650	807	921	1,200	1,500	1,556	1,455	1,455
Africa 3/										
Angola	22	12	27	23	20	31	23	31	31	30
East Africa	235	336	372	333	340	212	353	384	414	381
Congo (Leopoldville)	200	192	217	215	187	445	199	177	209	207
U.A.R. (Egypt)	1,578	1,692	1,640	1,532	908	1,727	1,485	1,081	1,433	924
Mozambique	130	103	120	112	140	148	180	144	130	95
Nigeria	29	36	60	75	45	99	137	140	159	114
Sudan	255	325	325	371	398	267	413	298	559	333
Western Africa	3	4	11	5	15	13	10	24	33	42
W. Equat. Africa	127	110	108	120	108	141	122	158	160	207
Others	2	2	6	15	30	38	26	19	28	23
Total	2,581	2,812	2,886	2,801	2,191	3,121	2,948	2,456	3,156	2,356
Asia										
India	704	254	206	146	123	292	103	207	552	252
Iran	6	16	29	105	35	117	164	204	177	180
Iraq	10	2	6	31	19	8	3	11	19	12
Pakistan	875	677	854	1,039	903	1,273	893	634	723	506
Syria	1	5	33	106	169	182	183	330	366	374
Turkey	5	129	209	349	261	433	377	233	142	224
Others	31	44	23	77	112	188	213	156	245	217
Total	1,632	1,127	1,360	1,853	1,622	2,493	1,936	1,775	2,224	1,765
World total	8,646	10,987	12,552	11,885	12,181	11,999	13,423	12,385	13,131	16,097
Foreign Free World	5,851	5,176	5,598	6,555	5,270	7,568	7,954	7,230	9,235	6,645
Communist countries 5/	770	850	950	1,050	1,200	1,250	1,555	1,570	1,576	1,535

See footnotes at end of table.

Table 17.--Cotton: World exports by country of origin, 1947-65, and
averages 1934-38 and 1959-63, continued-

Continent and country	Year beginning August 1									
	1957	1958	1959	1960	1961	1962	1963	1964 1/	Average 1934-38	Average 1959-63
	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/	1,000 bales 2/
United States	5,959	2,895	7,392	6,858	5,056	3,429	5,662	4,060	5,296	5,702
Mexico	1,417	1,809	1,304	1,610	1,482	1,897	1,426	1,616	105	1,544
Central America										
El Salvador	127	247	112	138	208	292	304	255	0	211
Guatemala	45	65	55	80	115	221	269	283	3	148
Nicaragua	146	331	115	139	242	288	402	525	28	237
Others	25	27	12	13	21	29	36	55	0	22
Total	343	670	294	370	586	830	1,011	1,118	31	618
South America										
Argentina	0	47	31	66	141	216	100	1	133	111
Brazil	215	242	446	695	847	1,145	1,023	1,040	1,065	831
Columbia	0	0	30	119	143	115	54	52	0	92
Paraguay	35	35	5	20	29	32	47	41	41	27
Peru	402	512	417	478	576	590	510	468	337	514
Others	0	0	0	0	0	0	0	6	0	0
Total	652	836	929	1,378	1,736	2,098	1,734	1,608	1,576	1,575
Western Europe										
Greece	124	194	153	150	302	238	263	167	0	221
Spain	0	0	0	0	8	100	60	20	0	34
Others	---	---	---	---	---	---	99	106	---	---
Total	124	194	153	150	310	338	422	293	0	255
U.S.S.R. and Eastern Europe	1,455	1,605	1,757	1,755	1,608	1,504	1,711	1,811	53	1,666
Africa 3/										
Angola	27	30	35	29	17	28	22	16	---	26
East Africa	451	563	420	428	358	390	520	595	---	423
Congo (Leopoldville)	151	191	238	120	85	28	32	10	133	101
U.A.R. (Egypt)	1,256	1,380	1,838	1,582	1,121	1,361	1,372	1,558	1,747	1,458
Mozambique	160	125	195	210	154	184	123	168	25	172
Nigeria	111	198	147	181	168	141	145	120	40	156
Sudan	391	671	588	437	637	787	720	471	258	634
Western Africa	45	45	49	60	63	93	95	125	---	76
W. Equat. Africa	169	167	152	151	171	161	216	200	---	170
Others	25	33	31	23	31	41	40	67	403	33
Total	2,786	3,403	3,693	3,221	2,805	3,214	3,285	3,330	2,606	3,249
Asia										
India	227	325	187	224	253	287	231	202	2,746	236
Iran	198	190	190	245	266	220	326	320	80	249
Iraq	32	44	19	2	7	9	1	5	8	8
Pakistan	383	375	333	244	299	683	689	485	---	449
Syria	427	357	389	445	474	614	608	726	12	506
Turkey	130	325	409	286	458	568	587	773	84	462
Others	170	506	423	265	227	209	251	277	274	275
Total	1,567	2,122	1,950	1,711	1,984	2,590	2,693	2,788	3,204	2,185
World total	14,303	13,534	17,472	17,053	15,567	15,900	17,944	16,624	12,871	16,794
Foreign Free World	6,824	8,588	7,978	8,249	8,836	10,962	10,531	10,713	4/	9,295
Communist countries 5/	1,520	2,051	2,102	1,946	1,675	1,509	1,751	1,851	4/	1,797

1/ Preliminary. 2/ Bales of 500 pounds gross weight. 3/ Modern names and geographic regions used.
4/Breakdown not available for this period. 5/ Data for Communist countries for all years include U.S.S.R,
Mainland China, eastern European countries, and Cuba.

Compiled from Foreign Agricultural Service data.

Table 18.--Cotton: Average prices of U.S. and Mexican
Strict Middling 1 1/16" inch, c.i.f. Liverpool, England 1/

(U.S. cents per pound)

Year beg. Aug. 1	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
			United States				
1951	39.88	40.67	42.47	47.57	49.45	49.14	48.12
1952	46.14	45.75	43.34	41.49	39.87	39.45	39.63
1953	39.10	39.04	39.05	39.14	39.16	39.59	40.36
1954	39.25	40.69	40.38	39.90	40.55	40.74	40.99
1955	40.70	40.05	40.72	41.35	41.97	42.16	42.86
1956	31.46	31.14	31.85	33.19	33.87	33.32	33.26
1957	34.32	34.22	35.00	36.21	36.53	37.05	36.10
1958	34.63	33.72	33.97	33.95	33.33	33.22	32.61
1959	28.54	28.64	28.64	29.17	29.88	29.70	29.61
1960	29.68	29.89	30.05	29.90	30.24	30.29	30.96
1961	30.23	30.48	30.68	30.73	30.87	31.04	31.25
1962	30.04	29.88	29.82	29.71	20.16	30.72	31.30
1963	28.75	28.69	28.68	28.74	28.90	29.11	29.32
1964	29.30	29.23	29.30	29.38	29.58	29.66	29.70
			Mexican				
1951	38.85	40.02	42.47	47.35	49.16	47.79	46.11
1952	44.80	45.20	42.30	40.91	39.15	37.40	37.69
1953	37.84	37.75	37.73	37.97	38.29	39.01	37.60
1954	38.93	40.51	40.37	39.86	40.39	40.16	40.04
1955	37.22	35.03	34.66	35.04	34.23	35.34	37.68
1956	31.40	31.55	32.06	33.01	33.59	34.18	34.04
1957	33.99	33.69	34.05	35.23	36.03	36.08	34.84
1958	31.16	30.35	31.16	30.40	20.16	29.01	29.05
1959	28.09	28.48	28.70	29.22	29.91	29.38	29.27
1960	29.64	30.01	30.16	30.20	30.12	30.12	30.12
1961	30.50	30.56	30.71	30.15	29.96	29.94	30.09
1962	28.93	28.42	28.41	28.78	29.63	29.85	29.70
1963	28.68	29.48	29.26	29.19	29.36	29.76	29.72
1964	29.19	29.39	29.30	29.09	29.14	29.14	29.35

See footnotes at end of table. **continued-**

Table 18.--Cotton: Average·prices of U.S. and Mexican
Strict Middling 1 1/16" inch, c.i.f. Liverpool, England 1/
continued-

(U.S. cents per pound)

Year beg. Aug. 1	Mar.	Apr.	May	June	July	Average
			United States			
1951	47.43	48.34	46.62	47.58	46.61	46.16
1952	39.84	39.39	39.91	39.44	39.48	41.14
1953	40.30	40.24	40.58	40.00	38.85	39.62
1954	40.73	40.54	41.81	42.03	40.59	40.68
1955	42.41	40.55	34.80	32.62	31.88	39.34
1956	33.86	34.41	34.42	34.08	33.94	33.23
1957	36.44	35.08	35.45	35.24	35.10	35.56
1958	32.44	32.86	33.34	28.27	28.47	32.57
1959	29.63	30.03	30.00	29.78	29.45	29.41
1960	31.78	31.92	31.09	30.15	30.20	30.51
1961	31.11	31.95	31.57	30.08	30.00	30.83
1962	31.51	30.34	28.98	28.96	28.91	30.03
1963	29.44	29.68	29.66	29.21	29.22	29.12
1964	29.69	29.77	29.81	29.60	28.85	29.49
			Mexican			
1951	43.69	43.32	40.95	41.62	42.71	43.67
1952	37.84	37.78	37.52	37.81	38.25	39.72
1953	38.91	38.80	38.71	38.22	37.97	38.23
1954	38.69	38.24	38.68	38.68	37.40	39.33
1955	38.43	37.48	34.11	32.74	31.58	35.30
1956	34.25	33.68	33.26	33.13	33.18	33.11
1957	34.11	34.23	34.11	32.94	31.40	34.22
1958	28.43	29.01	29.39	28.43	27.88	29.45
1959	29.35	29.20	29.31	29.72	29.84	29.21
1960	30.60	30.52	30.74	30.66	30.60	30.34
1961	30.10	0.93	29.82	29.68	29.43	30.07
1962	29.31	29.06	28.98	28.92	28.97	29.08
1963	29.70	29.59	29.76	29.89	29.42	29.48
1964	29.33	29.37	28.82	28.48	28.70	29.11

1/ From August 1952 through December 1955, prices are
c.i.f. Liverpool (D. Windel) and the source is ICAC. Begin-
ning with January 1956, prices are c.i.f. Liverpool (D.
Windel) and the source is FAS, Cotton Division. Monthly
prices are averages of weekly quotations. Averages for
some months include less than 4 weekly quotations--averages
for some other months include 5 quotations.

Foreign Agricultural Service.

Table 19.--U.S. cotton exports: Total exports, Government financed and commercial exports

Year beginning July 1	Total U.S. exports	Mutual Security Act	Army Civilian Relief	Grants, gifts, and sales for local currencies				Total Government financed	U.S. commercial exports
				Public Law 480					
				Title I	Title II	Barter	Title IV		
	1,000 bales	1,000 bales	1,000 bales	1,000 bales	1,000 bales	1,000 bales	1,000 bales	1,000 bales	1,000 bales
1947	1,903	----	71	---	---	---		71	1,832
1948	4,674	2,502	133	---	---	---		2,635	2,039
1949	5,726	3,299	114	---	---	---		3,413	2,313
1950	4,246	1,806	144	---	---	---		1,950	2,296
1951	5,600	791	52	---	---	---		843	4,757
1952	2,982	1,056	33	---	---	---		1,089	1,893
1953	3,648	836	11	---	---	---		847	2,801
1954	3,616	1,218	---	58	5	1		1,282	2,334
1955	2,139	683	---	468	27	51		1,229	910
1956	7,315	906	---	1,381	2	970		3,259	4,056
1957	5,666	670	---	890	25	465		2,050	3,616
1958	3,129	798	---	618	8	376		1,800	1,329
1959	6,636	417	---	709	10	112		1,248	5,388
1960	7,003	316	---	1,296	20	104		1,736	5,267
1961	4,753	59	---	1,058	---	25	53	1,195	3,558
1962	3,632	13	---	1,040	---	---	185	1,238	2,394
1963	5,147	14	---	860	---	165	44	1,083	4,064
1964	4,491	14	---	744	---	391	115	1,264	3,227

Table 20.--Factors used in analysis of world demand
for cotton, 1948 to 1962

Year	World cotton consumption per capita 1/	Price per pound for cotton 2/	World index of industrial production 3/	World non-cellulosic fiber consumption per capita 4/
	Pound	Cents	Percent	Pounds
1948	5.98	50.50	72	.03
1949	5.75	47.47	73	.05
1950	6.27	40.93	83	.07
1951	6.77	45.78	94	.10
1952	6.59	42.66	94	.13
1953	6.94	40.00	100	.16
1954	7.08	40.29	110	.19
1955	7.13	40.79	121	.22
1956	7.29	38.64	127	.29
1957	7.25	36.27	133	.36
1958	7.17	42.42	136	.36
1959	7.52	37.46	145	.49
1960	7.59	34.75	140	.59
1961	7.56	36.73	158	.67
1962	7.30	36.94	165	.84

1/ World consumption of cotton, year beginning January
1, divided by world midyear population estimates of Food
and Agricultural Organization of the United Nations.

2/ Average annual price per pound, year beginning October previous year, for United States cotton Strict Middling
1^{1}/16" c.i.f., Liverpool, England, deflated by Reuters commodity index (1953 = 100).

3/ Index of industrial production of Food and Agricultural
organization (1953 = 100).

4/ World consumption of non-cellulosic fibers, year beginning January 1, divided by population as described in footnote 1.

Table 21.--Factors used in analysis of foreign Free-
World demand for cotton, 1948-63

Year	Cotton consumption per capita 1/	Price per pound for cotton 2/	Income per capita 3/	Non-cellulosic fiber consumption per capita 4/
	Pounds	Cents	Dollars	Pounds
1948	5.74	56.34	239	.01
1949	5.74	54.46	250	.01
1950	5.88	52.40	290	.03
1951	6.32	57.81	294	.04
1952	5.96	51.20	304	.05
1953	6.40	44.44	300	.08
1954	6.79	44.69	310	.11
1955	6.67	46.31	321	.16
1956	6.94	40.24	327	.21
1957	7.20	34.42	314	.28
1958	6.70	35.55	304	.30
1959	6.82	29.28	278	.44
1960	7.13	26.00	288	.61
1961	7.33	25.68	308	.89
1962	7.03	23.49	321	1.18
1963	6.79	22.59	299	1.30

1/ Cotton consumption for 43 countries, year beginning
January 1, divided by midyear population estimates for
these 43 countries.
2/ Average annual price per pound, year beginning October
previous year, for United States cotton Strict Middling
$1^1/16$" c.i.f. Liverpool, England, deflated by Reuter's
commodity index (1953 = 100).
3/ National income for 43 countries converted to United
States dollars, divided by midyear population estimates
of these countries and deflated by an average cost of
living index for these countries. This index was weighted
by each country's cotton consumption.
4/ Non-cellulosic fiber consumption for 43 countries,
year beginning January 1, divided by mid-year population
estimates for these 43 countries.

Table 22.--Factors used in analysis of foreign
Free-World cotton acreage, 1948-63

Year	Foreign Free-World cotton acreage 1/	Price per pound for cotton 2/	Time trend 3/	Time trend 3/	Zero-one variable 4/
	Million acres	Cents			
1948	29.4	39.22	1	0	0
1949	32.0	40.10	2	0	0
1950	37.0	40.80	3	0	0
1951	40.9	57.68	4	0	0
1952	40.0	46.16	5	0	0
1953	39.8	41.14	6	0	0
1954	43.5	39.62	7	0	0
1955	47.2	40.68	8	0	0
1956	45.9	39.34	0	09	1
1957	46.0	33.23	0	10	1
1958	46.8	35.56	0	11	1
1959	45.0	32.57	0	12	1
1960	46.0	29.43	0	13	1
1961	48.3	30.73	0	14	1
1962	48.8	30.83	0	15	1
1963	49.7	30.03	0	16	1

1/ Total acres devoted to cotton in foreign Free World.
2/ Price for U.S. cotton S.M. 1 1/16 inch c.i.f. Liverpool, England, year beginning August 1, with a 1 year lead.
3/ Time trend to account for factors affecting cotton acreage that could not be quantified for inclusion in the analysis.
4/ The zero-one variable was included to account for the change in the trend from 1948-55 to 1956-63.

Table 23. Factors used in analysis of U.S. commercial
cotton exports, 1948-63

Year	U.S. commercial cotton exports 1/	Price per pound for cotton 2/	Price 3/
	Million bales	Cents	Ratio
1948	2.04	42.75	100.0
1949	2.31	39.40	100.0
1950	2.30	37.97	100.0
1951	4.76	36.74	100.4
1952	1.89	34.83	106.2
1953	2.80	33.02	104.2
1954	2.33	34.04	102.4
1955	.91	34.41	109.8
1956	4.06	30.59	104.8
1957	3.62	31.07	101.2
1958	1.33	35.01	107.7
1959	5.39	30.28	105.9
1960	5.27	29.35	100.7
1961	3.61	30.94	101.6
1962	2.59	30.76	103.8
1963	4.08	26.40	101.1

1/ Total United States cotton exports, year beginning
July 1, less those exports financed by the United States
Government.
2/ Price of United States cotton S.M. 1^{1}/16 inch, c.i.f.
Liverpool, England, year beginning January 1, deflated by
Reuters Commodity index.
3/ Ratio of the price of U.S. grown-cotton, S.M. 1^{1}/16
inch, c.i.f. Liverpool, England, year beginning January 1,
to the price of Mexican-grown cotton of comparable quality
in the same import market.

Table 24.--Population figures and indexes used in
computing factors for analysis

Year	Population [1]		World mill consumption [2]		Reuters Commodity Index (1953=100)	Cost-of-living index 43 countries (1958=100)	Wholesale Price Index 43 Countries (1958=100)
	World	43 Countries	Cotton	Non-cellulosic fibers			
	Billion	Billion	Billion pounds	Billion pounds	Percent	Percent	Percent
1948	2.4	1.1	14.4	0.1	78.1	67	70
1949	2.4	1.2	14.1	0.1	84.9	70	74
1950	2.5	1.2	15.6	0.2	103.7	71	81
1951	2.5	1.2	17.1	0.3	122.5	78	97
1952	2.6	1.2	16.9	0.3	110.4	82	92
1953	2.6	1.2	18.1	0.4	100.0	84	90
1954	2.7	1.2	18.8	0.5	98.7	84	89
1955	2.7	1.3	19.2	0.6	99.9	85	88
1956	2.7	1.3	20.0	0.8	97.9	90	94
1957	2.9	1.3	20.7	1.0	93.0	94	98
1958	2.9	1.3	20.9	1.1	83.8	100	100
1959	3.0	1.4	22.4	1.5	84.4	108	108
1960	3.0	1.4	23.0	1.8	85.3	114	114
1961	3.1	1.4	23.2	2.1	83.9	122	120
1962	3.1	1.4	22.9	2.6	83.3	134	131
1963	3.2	1.5	---	---	---	138	132

[1] Latest midyear population data available through 1963, United Nations Statistical Yearbook.

[2] Latest consumption data available through April 1963, Cotton-World Statistics, quarterly bulletin of the International Cotton Advisory Committee.